



## ***Rangeland Reform 94***

### ***Current Schedule***

#### **ACTION**

#### **DATE**

**Publish Regulations**

**3/18/94**

**Release EIS**

**4/15/94**

**90 Day Comment Period Ends**

**7/15/94**

**Final EIS**

**11/30/94**

**Record of Decision Signed**

**12/30/94**

ITEM HAS BEEN DIGITIZED



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CHAPTER 1

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

NATURE AND PURPOSE OF ACTION

Rangeland Reform '94 is a proposal of the U.S. Department of the Interior (USDI) and the Bureau of Land Management (BLM), in cooperation with the U.S. Department of Agriculture and the Forest Service. These agencies administer livestock grazing on approximately 170 million acres and 100 million acres of federal rangelands respectively. The proposal involves policy and regulatory changes in BLM and the Forest Service's rangeland management programs intended to improve ecological conditions while providing for sustainable development on lands administered by the two agencies.

A major policy element of the reform package consists of national requirements and direction for developing state or regional standards and guidelines for livestock grazing on BLM-administered lands. A provision for national fallback standards and guidelines to take effect if regional standards and guidelines have not been developed within 18 months~~year~~ is also included in the reform package.

To meet the national requirements, BLM will develop state or regional standards and guidelines and complete a plan conformance test within 18 months~~year~~--subject to compliance with NEPA and BLM's planning regulations. All standards and guidelines conforming to existing land use plans will be implemented immediately. Standards and guidelines not conforming to existing land use plans will require plan amendments and additional National Environmental Policy Act (NEPA) analysis. If regional standards and guidelines have not been prepared~~developed~~ by the end of 18 months, the minimum national fallback standards and guidelines will be implemented immediately subject to the plan conformance test and NEPA compliance as required for the regional standards and guidelines.

National forest land and resource management plans have standards and guidelines for managing rangeland resources on Forest Service-administered lands. The Forest Service will continue to develop standards and guidelines at the forest plan level.

BLM and the Forest Service also propose regulatory changes in their rangeland management programs. Significant ~~Regulatory~~ changes that may have a significant environmental effect either alone or cumulatively are analyzed in this document. ~~These changes which would not have a significant environmental effect, either alone or cumulatively, or that are existing policies that~~

are being codified to regulations are not analyzed in this document.

In addition, BLM and the Forest Service propose to change the formula for calculating fees for grazing on lands in the western states.

The Rangeland Reform '94 Draft Environmental Impact Statement (EIS) is a national programmatic EIS. It complies with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality's regulations governing implementation of NEPA (40 CFR 1500). NEPA, as amended in 1975, requires all federal agencies to analyze the environmental impacts of any proposed action affecting public land or resources, to involve the public in decisionmaking, and to disclose environmental impacts to the public. NEPA also requires that the analysis be interdisciplinary and issue driven and that cumulative and indirect effects be reported. An EIS is required for any major federal action significantly affecting the quality of the human environment.

This EIS will serve as the NEPA analysis for the national requirements for the regional standards and guidelines, and the minimum fallback standards and guidelines basis for later regional or site specific NEPA analyses needed to implement BLM's standards and guidelines. State or regional standards and guidelines would be completed/developed on or before 18 months after the effective date of the final rule, subject to the appropriate level of NEPA analysis. Any additional NEPA compliance will tier to the analysis of the national requirements and minimum fallback standards and guidelines presented in this EIS. Any additional NEPA work would be at the appropriate level (i.e. none, categorical exclusion, environmental assessment, or environmental impact statement, adopting other NEPA work, etc.), depending on plan conformance determinations and previous NEPA work.

#### BACKGROUND

Public rangelands are important resources, particularly for the people of the western United States. Livestock grazing has been an integral part of the western landscape and lifestyle since the late 1800s. The livestock industry has historically played a major role in the economy of the West. BLM and the Forest Service are challenged with providing a stable resource base and a reasonable return for grazing livestock on federal lands, while recognizing the growing social and economic importance of other resources to local communities.

1 Much controversy surrounds the interpretation of the true  
2 condition of the public rangelands. Some say the public  
3 rangelands are in better condition today than at any point during  
4 this century. Others say the public rangelands are in  
5 unsatisfactory condition as evidenced by the widespread invasion  
6 of exotic plants and the degraded conditions in many riparian-  
7 wetland areas.

8 At the time it enacted the Public Rangelands Improvement Act of  
9 1978 (PRIA), Congress concluded the following as evidenced in the  
10 findings of the Act:

- 11       ● Rangelands were still producing below their potential.
- 12       ● Rangelands would remain in unsatisfactory condition or  
13       decline even further under current levels of funding  
14       and management.
- 15       ● The unsatisfactory condition of public rangelands  
16       presented a high risk for soil loss, siltation,  
17       desertification, water loss, loss of wildlife and fish  
18       habitats, loss of forage for livestock and other  
19       grazing animals, degradation of water quality, flood  
20       danger, and threats to local economies.

21 Some things have changed since the passage of PRIA. The  
22 ecological condition on most uplands has improved and most are  
23 functioning properly. But many riparian areas continue to be  
24 degraded, and are not functioning properly.

25 Many of the current grazing regulations either no longer provide  
26 for efficient program administration or are applied  
27 inconsistently between different areas. In addition, BLM and  
28 Forest Service regulations differ in several respects. Since  
29 many ranchers graze livestock on rangelands administered by both  
30 agencies, these differences create confusion and waste.

31 Over time, the costs of administering the grazing program have  
32 risen. While budgets also rose once Congress recognized the need  
33 for rangeland management, grazing fees have changed little in  
34 recent years. The increased costs of administering the livestock  
35 grazing program are approximately double the revenue generated  
36 through grazing fees. This added cost of administering the  
37 grazing program is borne mostly by the entire American public.

38 The intent of the changes proposed by Rangeland Reform '94 is to:

- 1 • make the Forest Service and BLM's rangeland management
- 2 programs more compatible with ecosystem management, and
- 3 more consistent with each other,
- 4 • accelerate restoration and improvement of public
- 5 rangelands to proper functioning condition,
- 6 • obtain, for the public, a fair payment for grazing
- 7 livestock on public lands,
- 8 • streamline administrative functions, and
- 9 • consider the needs of local communities for open space
- 10 and their dependence on livestock grazing

11 For decades since the late 1980s, the Executive Branch of the  
12 Federal Government has studied programs for grazing various  
13 aspects of livestock grazing on public lands. Most recently,  
14 the Forest Service began a review of its existing grazing  
15 regulations in 1987. The U.S. General Accounting Office and the  
16 Department of the Interior, Office of Inspector General audited  
17 selected features of public rangeland programs (USDI OIG 1992;  
18 GAO 1988a, 1988b, 1990, 1991a, 1991b, 1991c, 1992). The audits  
19 found several administrative and policy issues that need  
20 attention, including the following:

- 21 - the unauthorized practice of permittees leasing (rather
- 22 than using) their federal permits for fees much higher than
- 23 the federal grazing fee and turning a profit;
- 24 - the need for procedures to quickly correct rangeland
- 25 abuse;
- 26 - the validity of BLM methods used to protect the Nation's
- 27 fragile hot deserts;
- 28 - whether Range Betterment Funds are spent properly on
- 29 repairing watersheds, stabilizing soil, and rehabilitating
- 30 vegetation;
- 31 - the advantage of implementing an ecosystem approach to
- 32 rangeland management; and
- 33 - the value of a fair return to the Federal Government from
- 34 grazing fees.

35 The 1987 Forest Service review identified parts of the existing  
36 regulations that required revision and clarification, and other  
37 parts that were outdated and required removal. On August 16,  
38 1988, the Forest Service published a proposed rule responding to  
39 the findings of the review [53 FR 30954]. That proposed rule has  
40 not been finished, but this EIS considers the main features of  
41 and comments received on that proposed rule.



1 In 1991, the BLM Director asked the agency's National Public  
2 Lands Advisory Council to recommend ways to improve BLM's  
3 rangeland management program. The council chartered a blue  
4 ribbon panel of professional ecologists and rangeland managers,  
5 who produced a report entitled "Rangeland - Program Initiatives  
6 and Strategies" (Sharpe and others 1992). The panel concluded  
7 that BLM's main objective should be to protect the basic  
8 components of rangeland--soil, water, and vegetation--and that  
9 goals to achieve this should be based on modern ecological  
10 concepts.

11 In the fall of 1992, several conservation organizations informed  
12 the Secretary of the Interior that they wanted BLM to improve its  
13 grazing administration by encouraging stewardship and designing  
14 ways to quickly improve the environment.

15 BLM organized an Incentive Based Grazing Fee Task Force in 1992  
16 to consider ways to establish an equitable fee for federal forage  
17 and to examine the feasibility of using fee credits to encourage  
18 public land stewardship. A draft of the task force's study was  
19 presented to the Secretary of the Interior in June 1993, and many  
20 of its suggestions were incorporated in the Rangeland Reform '94  
21 proposal (Forest Service and BLM 1993a). Also in June 1993, the  
22 Western Governors' Association drafted a resolution on grazing  
23 fees, reiterating that a healthy livestock industry is essential  
24 to the western states and acknowledging that the current grazing  
25 fee formula results in a fee, and subsequently revenue, that does  
26 not reflect the value of the forage. It called for a fee  
27 structure that is predictable, affords stability to permittees,  
28 and is linked to credits for land stewardship.

29 The National Research Council published a report in January 1994  
30 entitled *Rangeland Health New Methods to Classify, Inventory and*  
31 *Monitor Rangelands* (National Research Council, 1994). A  
32 preliminary review of the council's publication showed that it is  
33 likely consistent with many of the proposals and the analysis  
34 contained in this EIS. BLM and Forest Service intend to  
35 thoroughly review the report and consider its information while  
36 formulating the final EIS. Some of the information contained in  
37 the report has been used in the development of the direction for  
38 development of standards and guidelines as described in Chapter  
39 2. Public comment on the information in the report is invited.

#### 40 ADMINISTRATIVE ACTION

41 The following administrative actions have been undertaken  
42 concurrently to evaluate Rangeland Reform '94 and accomplish its  
43 goals: the Rangeland Reform '94 EIS, and BLM and Forest Service's

rulemaking processes. An EIS is not itself a decision document. It is a document to assist the decisionmaker by disclosing the environmental consequences of implementing a proposed action and its alternatives.

After a 90-day public comment period on the draft EIS, the BLM and Forest Service will publish a final EIS that considers the comments received. After the final EIS is published, the Secretary of Agriculture and the Secretary of the Interior will issue separate records of decision. The records of decisions and rulemakings are separate because the agencies operate under different regulatory authorities.

The records of decision will contain two related decisions:

- (1) The first decision will select the management policies that BLM and the Forest Service will adopt to satisfy the needs presented for their rangeland management programs.
- (2) The second decision will select the grazing fee structure that each agency will adopt.

Federal agencies issue regulations to establish policies and implement administrative programs, such as grazing administration. The new regulations will implement the decisions and policies that will result from Rangeland Reform '94. In July 1993, BLM and the Forest Service began the rulemaking process for grazing administration regulations by publishing separate Advance Notices of Proposed Rulemaking (ANPRs). Over 8,000 comment letters on the ANPRs were received ~~and~~ between July 13 and October 20.

This process will continue through publication of proposed rules and final rules. The proposed rules are being issued for comment at the same time as the draft EIS. The final rules will be published after the Secretaries of the Interior and Agriculture review comments on the proposed rule and draft EIS, and issue the final EIS and records of decision. Figure 1-1 shows the general steps in the EIS and the rulemaking process.

BLM's main authority to manage public rangelands is established by the federal Land Policy and Management Act of 1976 (FLPMA), the Taylor Grazing Act (TGA) of 1934, and the Public Rangelands Improvement Act of 1978 (PRIA). Through this authority, BLM is responsible for managing resources on public lands in a manner that maintains or improves them. The BLM planning regulations prescribed in FLPMA are set forth in 43 CFR 1600. Each resource



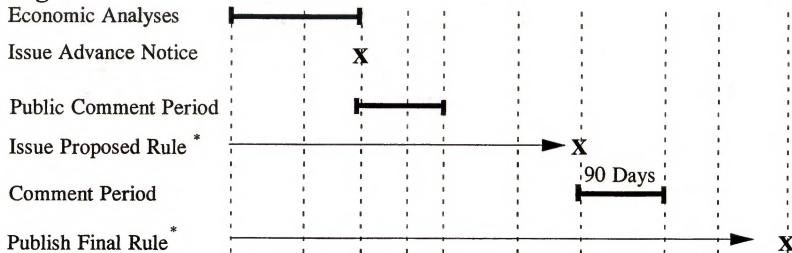
- 1 management plan (RMP) and its associated EIS govern the overall
- 2 management of lands and minerals in a given administrative area.

Figure 1-1

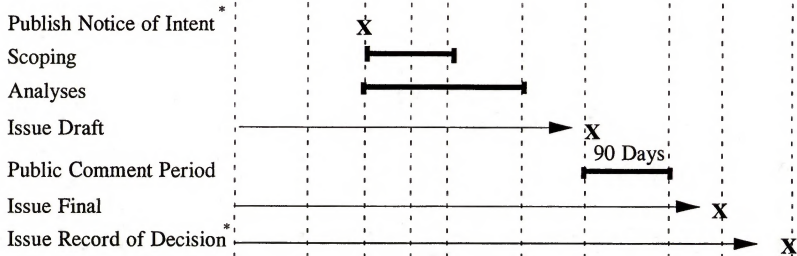
# General Steps in the EIS and Rulemaking Process

Late  
FY 94

## Rulemaking



## EIS



\* NEPA and Rulemaking comment periods are synchronized and build upon each other. Record of Decision and Final Rules are completed at same time.

1 The Forest Service's primary authority for managing National  
2 Forest System land is established by the Organic Administration  
3 Act of 1897, Bankhead-Jones Farm Tenant Act of 1937, Granger-Thye  
4 Act of 1950, Multiple-Use Sustained-Yield Act of 1960, federal  
5 Land Policy and Management Act of 1976, and Public Rangelands  
6 Improvement Act of 1978. Authority for developing comprehensive  
7 management plans for National Forest System lands is established  
8 by the Forest and Rangeland Renewable Resources Planning Act of  
9 1974 as amended by the National Forest Management Act of 1976  
10 (NFMA). NFMA also gives the Forest Service authority and  
11 direction to provide for the multiple use and sustained yield of  
12 products and services from the National Forest System. Forest  
13 Service planning regulations are found in 36 CFR 219. These  
14 regulations provide for developing forest land and resource  
15 management plans (forest plans), which define overall management  
16 direction, including standards and guidelines for managing  
17 National Forest System resources.

18 Rangeland Reform '94 will comply with the Federal Land Policy and  
19 Management Act of 1976 (FLPMA) mandate to protect the quality of  
20 federal land resources while recognizing livestock grazing as one  
21 of the uses of the public land in the context of multiple use  
22 (FLPMA, Sec. 102 [a][8], Sec. 103 [c] and [1]). Similarly, the  
23 Forest Service recognizes the mandate of the National Forest  
24 Management Act of 1976 (NFMA) to "provide for multiple use and  
25 sustained yield of the products and services obtained therefrom  
26 [national forests] in accordance with the Multiple-Use,  
27 Sustained-Yield Act of 1960, and in particular, include  
28 coordination of outdoor recreation, range, timber, watershed,  
29 wildlife and fish, and wilderness . . ." (NFMA, Sec. 6(e)).

30 BLM and the Forest Service have different organizational  
31 structures, as shown in Figure 1-2.

#### 32 **STUDY AREA**

33 BLM and the Forest Service administer livestock grazing on  
34 roughly 170 million and 100 million acres of federal rangelands  
35 respectively. About 27,000 permittees, mainly in 17 western  
36 states, use BLM and Forest Service rangelands for livestock  
37 grazing. About 20 percent of these permittees operate on both  
38 BLM and Forest Service administered rangelands. This draft EIS  
39 describes the physical, biological, social, and economic effects  
40 of the alternative types of management and fee formulas BLM and  
41 the Forest Service are considering for rangeland management.

1 Figure 1-2 BLM and Forest Service Field Organizations

1 Rangeland Reform '94 addresses grazing fee issues for BLM- and  
2 Forest Service-managed rangelands in the following 17 western  
3 states:

Arizona	Nebraska	South Dakota
California	Nevada	Texas
Colorado	New Mexico	Utah
Idaho	North Dakota	Washington
Kansas	Oklahoma	Wyoming
Montana	Oregon	

4  
5 If a new fee is established, it would not apply to the eastern  
6 states, because BLM does not manage rangelands in the East and  
7 grazing fees on National Forest System lands in the eastern  
8 states are currently based on either fair market value or  
9 competitive bidding (36 CFR 222.53 and 222.54). The analysis and  
10 decisions made on grazing fees would also not apply to any other  
11 federally administered grazing program, including the Fish and  
12 Wildlife Service, whose grazing fees are determined under the  
13 Refuge Administration Act and 50 CFR 295. (See the fold-up land  
14 status map for federal lands affected by Rangeland Reform '94  
15 enclosed in this EIS.)

16 Rangeland Reform '94 EIS applies to national forests in the  
17 states referenced above, national grasslands, and BLM-  
18 administered rangelands.

#### 39 SCOPING

40 Scoping, that is, seeking public input, is an integral part of  
41 the environmental analysis process for determining issues and  
42 alternatives to be addressed in the draft EIS for a proposed  
43 action. Scoping for Rangeland Reform '94 was conducted on the  
44 basis of past studies (both internal and external to the  
45 agencies) and comments from diverse sources, including members of  
46 the livestock industry, environmental organizations,  
47 universities, local governments, and private citizens, and is  
48 summarized below.

49 On July 13, 1993, BLM published a Notice of Intent to prepare an  
50 EIS on the effects of rangeland management reform, and listed the  
51 Forest Service as a cooperating agency. The notice opened the  
52 EIS scoping period by inviting participation of interested and  
53 affected parties. Public comments were received from July 13  
54 through October 20. Because of the high level of interest

demonstrated by the comments received, the scoping period was reopened for another 30 days through an August 13, 1993, *Federal Register* notice, and then for another 30 days through a September 20, 1993, *Federal Register* notice. All comments received during the period from July 13 to October 20 were considered in the scoping process for this document.

On August 13, 1993, BLM and the Forest Service each published an Advance Notice of Proposed Rulemaking in the *Federal Register*, notifying the public of their intent to revise their rangeland management regulations and soliciting comments and suggestions from the public to be incorporated in that process. Comments were received from more than 8,000 persons and organizations during the July 13 to October 20 public comment period on the ANPR. Scoping comments covered more than 150 issues and several specific suggestions. Several alternatives analyzed in this EIS were derived from comments received as a result of the Notice of Intent. Further discussion of overall public participation is included in Chapter 5.

As a result of public comments on the documents distributed in the summer of 1993 and the meetings held by the Secretaries of the Interior and Agriculture, the Department of the Interior and the Department of Agriculture have modified many of the initial proposals for reforming rangeland management.

Five major categories of proposed management actions are addressed in Rangeland Reform '94: (1) federal grazing fee formula and associated incentives, (2) effective public participation in rangeland management, (3) administrative practices, (4) rangeland improvements and water rights, and (5) resource management requirements, including national requirements, ~~national minimum fallback~~ standards and guidelines, and regional standards and guidelines.

#### Federal Grazing Fee and Associated Incentives

The Proposed Action presents a formula that is intended to correct the fundamental problems of the present fee, the wide disparity between rates charged for livestock forage on private and on Federal lands and the failure to follow the trend of forage value in the private market. A major criticism of the current fee formula is that while forage value in the private market has increased substantially over time, the Federal grazing fee formula has produced relatively small increases and, in some years, decreases. The proposed formula includes a base value that considers the cost differences of operating on public lands as compared to private leases, as well as appraisal data. After an initial phase-in period, the fee would be adjusted annually to



1 reflect the change in the private land lease rate in the 17  
2 western states (that is, forage value index). Although no  
3 explicit index based on production costs or value of products  
4 produced is used, both factors influence the prices paid for  
5 forage and so are, to some extent, implicit in the forage value  
6 index. The proposed formula is essentially a return to the  
7 simpler formula that was in effect before 1978 using an updated  
8 base value.

9 The initial proposal generated a great amount of public comment  
10 both for and against increasing the fee. Most of the comments  
11 related to the anticipated impacts to individual operators and to  
12 rural western economies. Many respondents suggested regional  
13 economic differences, the cost of investment in public lands, and  
14 overall rangeland resource conditions should be considered in  
15 determining grazing fees. Some felt the proposed fee would be  
16 economically devastating, and some felt that a fee increase was  
17 warranted, but the proposal represented too little or too great  
18 an increase.

19 As a result of the public input gained following the advance  
20 notice of proposed rulemaking and through the scoping process for  
21 the environmental analysis of Rangeland Reform '94, the Depart-  
22 ments have determined that the fee formula initially proposed  
23 represents a reasonable and equitable method for calculating the  
24 fee. However, an adjustment in the forage value index is pro-  
25 posed and a provision that will provide for the future develop-  
26 ment of an incentive-based fee has been added.

27 A base value of \$3.96 per animal unit month (AUM) is proposed.  
28 This value represents a midrange between the results obtained  
29 through the use of two methods for estimating a fair base value.  
30 Explanation of the methodology used in arriving at the \$3.96 base  
31 value is presented in Appendix C. The proposed fee would be  
32 phased in over the years 1995 through 1997. An additional  
33 economic analysis of the impacts of the fee increase will be  
34 conducted during the phase-in period. Decisions on full  
35 implementation of the fee increase will be re-evaluated based on  
36 that economic analysis. Thereafter, annual increases or de-  
37 creases in the grazing fee resulting from changes in the forage  
38 value index would be limited to 25 percent of the amount charged  
39 the previous year to provide for a measure of stability that  
40 would facilitate business planning.

41 The Proposed Action would establish 1996 as the base year for the  
42 forage value index. The forage value index would not be used to  
43 annually adjust the fee in response to market conditions until  
44 the year 1997. This proposed rule would establish the 1995  
45 grazing fee at \$2.75, and the 1996 grazing fee at \$3.50. There-

1 after the fee would be calculated, except as provided below,  
2 using the base value of \$3.96 multiplied by the revised forage  
3 value index. By definition, the forage value index in the year  
4 1995 would equal one; yielding a 1997 grazing fee of \$3.96. In  
5 subsequent years the calculated fee would depend on the changes  
6 in the market rate for private grazing land leases as reflected  
7 by the forage value index.

8 This change in the derivation of the forage value index is  
9 proposed to reduce the uncertainty in the fee in the immediate  
10 future that resulted from using a forage value index based on  
11 less current private land lease rate data. Under the proposal  
12 presented in the advance notice of proposed rulemaking, the fee  
13 would have been adjusted annually by a forage value index based  
14 on the average price paid for private grazing in the years 1990  
15 through 1992. Assuming that forage value index would have  
16 remained constant until the end of the phase-in period provided  
17 in the advance notice, the formula would have yielded a grazing  
18 fee of \$4.28 per AUM as compared to a 1997 fee of \$3.96 per AUM  
19 using the revised forage value index.

20 In recent years the Departments have considered several proposals  
21 for incentive-based grazing fees targeted at encouraging good  
22 ~~stewardship of the public lands. Although the Departments~~  
23 ~~recognize that an incentive based fee would be a valuable tool~~  
24 ~~for encouraging stewardship, no proposal has been identified that~~  
25 ~~could be implemented as part of Rangeland Reform '94. However,~~  
26 ~~the Departments intend to move forward in the preparation of a~~  
27 ~~separate rule addressing incentive based grazing fees in the~~  
28 ~~relatively near future. This proposed rule is expected to~~  
29 ~~provide for a 30 percent incentive fee reduction and will set~~  
30 ~~forth the eligibility criteria for incentive fee reductions. In~~  
31 ~~preparation for the development of an incentive based fee, a~~  
32 ~~provision has been included in the proposed action that would~~  
33 ~~substitute a base value of \$3.50, beginning in the year 1997, in~~  
34 ~~the event that the Departments have not completed a separate~~  
35 ~~rulemaking establishing criteria and procedures for the implemen-~~  
36 ~~tation of an incentive fee formula. The Department anticipates~~  
37 ~~that an incentive of a 30 percent discount from the fee calcu-~~  
38 ~~lated using the proposed \$3.96 base value at permittees and~~  
39 ~~lessees who have improved rangelands and contributed to healthy,~~  
40 ~~functional ecological conditions. The Departments recognize that~~  
41 ~~an incentive-based fee would be a valuable tool for encouraging~~  
42 ~~stewardship. It was not possible to develop proposed eligibility~~  
43 ~~criteria for the incentive-based fee in time to include them in~~  
44 ~~Rangeland Reform '94. However, the Departments have included in~~  
45 ~~the Proposed Action a 30 percent reduction in the grazing fee for~~  
46 ~~grazers who practice good stewardship of public lands. The 30~~  
47 ~~percent reduction would be implemented as soon as the Departments~~



complete a separate rule making setting forth the eligibility criteria. To ensure timely development of that rule, this proposed action provides that an alternative base value of \$3.50 would be implemented in 1997 if the Departments have not completed the eligibility criteria. Such a discount would result in a grazing fee of \$2.77 per AUM in 1997 for qualifying permittees and lessees. Reviewers are asked to provide suggested criteria for qualifying for the reduced fee that address the improvement and maintenance of rangeland health.

#### Effective Public Participation

Included in this general category are proposals for the formation of multiple resource advisory councils in most BLM administrative districts and the involvement of the multiple resource advisory councils in the development of standards and guidelines for grazing; a provision allowing multiple resource advisory councils to establish and select members of resource teams and technical review teams for the purpose of providing detailed input to be used by the multiple resource advisory council in developing recommendations; removal of references to the National Public Lands Advisory Council, district advisory councils, and grazing advisory boards; and modification of how interested members of the public can become involved in specific grazing decisions.

Most comments generated during scoping, and a great deal of the input gained through the Secretary of Interior's visits to western states, supported modification of the initial proposal to expand the definition of affected interests, eliminate grazing advisory boards and district advisory councils, and create regional resource advisory councils. Many comments expressed a concern that local input would be overshadowed by interests not directly affected by the decisions to be made while others asserted that all citizens should have an equal say in the management of public lands. There was also a great amount of interest in making public participation more effective by encouraging consensus-based forms of decisionmaking.

During the winter of 1994, Governor Roy Romer of Colorado convened and conducted several meetings of the Colorado Rangeland Reform Working Group. Although this working group considered many of the proposals of Rangeland Reform '94, a key finding of the group was that the current framework employed by the Department of the Interior and the BLM for encouraging community-based involvement was inadequate. This issue became the focus of much of the working group's efforts. The working group prepared a summary of its findings and a model for enhanced community-based involvement. The Department agrees with the findings of the

group and has attempted to incorporate the model for public involvement in the Proposed Action.

### Administrative Practices

Administrative practices described in the proposed action include: (1) a modified provision on disqualification for grazing permits and leases, (2) expediting BLM grazing appeal procedures for reviewing administrative appeals and implementing decisions, (3) adding performance as a basis requirement for being issued a grazing preference allocating new or unallocated forage, (4) imposing a surcharge on BLM grazing fees for leasing base property or pasturing livestock not owned by permittees with an exception for permittees' sons and daughters, and (5) allowing nonmonetary settlements for incidental unauthorized use.

Both agencies have substantially changed the initial proposals affecting administrative practices in response to public input. Aspects of the initial proposals regarding administrative practices that received the most comments were adjusting permit and lease tenure as a performance incentive, implementing full force and effect of decisions, disqualifying applicants who have had permits canceled for violating terms of federal grazing permits, imposing leasing surcharges, and eliminating suspended nonuse.

The initial proposal by BLM to disqualify applicants for grazing permits if their state or federal grazing permits have been canceled during the past 36 months has been modified in response to public comment. The new proposal would limit disqualification to applications for new or additional permits and leases. Renewal of other grazing permits or leases would not be affected. The provisions of this proposal applying to state permits has been limited to state permits within the federal grazing allotment for which the application has been made. The Forest Service's initial proposal on disqualifying applicants for grazing permits has not changed.

A new provision has been added to clarify that partial suspension of a federal grazing permit would not be grounds for disqualification. Permits are partially suspended as a punitive measure where permittee actions do not justify cancellation. The agencies believe that disqualification on the basis of partial suspension would amount to excessive punishment and would reduce the usefulness of partial suspension in addressing violations.

The proposal modifies provisions for expediting BLM procedures for reviewing administrative appeals and implementing decisions. The initial proposal for placing BLM's grazing administration

1 decisions in full force and effect generated some confusion and  
2 has been clarified. ~~The objective of placing decisions in full~~  
3 ~~force and effect is to expedite the review and resolution of~~  
4 ~~appeals.~~ The proposal would not prevent affected parties from  
5 filing appeals or requesting stays of decisions until appeals are  
6 decided. Believing this proposal to be critical to streamlining  
7 administration and focusing limited resources where they can do  
8 the most good, the Interior Department has retained the substance  
9 of the initial proposal. The explanation of the proposed appeal  
10 provisions has been clarified.

11 Many comments were received on the Department of the Interior's  
12 proposal for BLM to levy a surcharge when the private property  
13 serving as a base for public land grazing is leased or when  
14 livestock not owned by the permittee are pastured on public  
15 lands. This proposal responded to findings of the General  
16 Accounting Office (GAO 1986) and the Office of the Inspector  
17 General (USDI OIG 1992) that permittees and lessees who sublease  
18 are unduly benefitting from their permits or leases.

19 A major criticism of the initial proposal was that it would  
20 penalize children of permittees who are grazing a few animals as  
21 an educational or group project or trying to build a livestock  
22 herd in anticipation of assuming all or part of the family opera-  
23 tion. Recognizing the need to avoid penalizing children of  
24 grazing permittees, the Department of the Interior proposes to  
25 exempt ~~the childrens sons and daughters~~ of permittees from the  
26 surcharge.

27 The BLM proposal to eliminate suspended nonuse generated concern  
28 that property rights and financing agreements would be affected.  
29 The Interior Department has determined that eliminating suspended  
30 nonuse would not constitute a taking of private property rights.  
31 Suspended nonuse is a measure of forage that was included in the  
32 original allocation but livestock have not been allowed to graze  
33 because the initial allocation exceeded the carrying capacity of  
34 the rangeland. Only in rare instances have livestock been  
35 allowed to consume forage placed in this category.

36 Some reviewers were concerned that the proposal to eliminate  
37 suspended nonuse would affect forage placed in temporary suspen-  
38 sion or temporary nonuse. Forage is typically placed in temporary  
39 suspension as a punitive measure or as a result of temporary  
40 reductions in available forage due to conditions such as drought.  
41 Temporary nonuse involves forage voluntarily placed in nonuse by  
42 the permittee. Forage in temporary suspension or temporary  
43 nonuse would not be affected by this proposal.

As a result of public comment, and to avoid confusion between suspended nonuse and temporary nonuse, the Department of the Interior has decided not to include any changes in suspended nonuse within the Proposed Action.

The proposal by both agencies to base permit tenure on past performance has not been carried forward from the advance notice of proposed rulemaking. Public comment on the advance notice suggested the proposal would do little to encourage stewardship and would inadvertently penalize operators new to public land grazing, especially those starting in the business, by inhibiting their ability to secure financing. The agencies agree that the initial proposal for permit and lease tenure could result in negative impacts and has withdrawn that proposal.

#### Rangeland Improvements and Water Rights

The initial proposals regarding ownership of rangeland improvements and water rights on BLM-administered lands generated many comments. Most comments did not oppose proposed changes. But some respondents were concerned that the proposal meant the Federal Government would take existing rights to rangeland improvements and water. Although this was not the case, the language of the Proposed Action has been modified to clarify that existing valid rights will not be affected and that the rule would not usurp the authority of states to adjudicate water rights. ~~this matter~~

#### Resource Management Requirements

Public comments on the standards and guidelines included in the initial proposal generally expressed opinions that it is not possible to develop a set of national standards and guidelines that could be universally applied to grazing administration on public lands. Many reviewers recommended that standards and guidelines should only be developed at a more local level. Many comments also expressed uncertainty regarding whether the standards and guidelines would have the effect of law given they were presented as an appendix rather than proposed regulatory text.

The Department of the Interior agrees that standards and guidelines prepared at a ~~more local~~ state or regional level would be better tailored to fit resource conditions and livestock management practices. Therefore, the Department has not carried forward the standards and guidelines as included in the initial proposal. However, in order to promote greater consistency in management, and to focus management attention and resources where they will result in the greatest benefit to resources, the



Department recognizes a need to establish clear national requirements for grazing administration and guidance for the preparation of state or regional standards and guidelines. These national requirements and guiding principles for state or regional standards and guidelines have been included in the Proposed Action. In addition, the Department recognizes the importance of putting standards and guidelines in place in a timely manner, and has provided a mechanism for doing so in this proposal, that is, minimum fallback standards and guidelines.

The Department intends that state or regional standards and guidelines for grazing administration would be developed in consultation with multiple resource advisory councils and others within 18 months following the effective date of the final rule. In the event state or regional standards and guidelines have not been completed within 18 months of the effective date of the final rule, fallback minimum standards and guidelines provided in the Proposed Action would be implemented, subject to conformance with land use plans and compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4331 et seq., NEPA). The Department feels this provision for fallback minimum standards and guidelines is necessary to encourage prompt action toward the development of standards and guidelines that will be used to provide for necessary resource protection.

The national requirements for all grazing-related plans and activities on public lands under the Proposed Action include continuing or implementing grazing practices that maintain or achieve healthy, properly functioning ecosystems and riparian systems; continuing or implementing grazing practices that ~~protect public health and welfare~~; maintain, restore or enhance water quality and result in water quality that meets or exceeds state water quality standards; and continuing or implementing grazing management practices that assist in the maintenance, restoration or enhancement of the habitat of threatened or endangered species, or species that are classified as candidates for threatened or endangered species listing. These requirements are intended to reflect the most basic legal mandates for the management of public lands under the Taylor Grazing Act, FLPMA, Endangered Species Act, Clean Water Act, and other authorities. Where existing management practices fail to meet these national requirements, the BLM authorized officer would be required to take action to change grazing practices consistent with the regulations prior to the start of the next grazing year.

State or regional standards and guidelines would be developed to provide further guidance, within the framework of the national requirements, in the administration of livestock on public lands. BLM state directors, in consultation with the affected multiple

resource advisory councils, would be responsible for identifying the appropriate geographical areas for which sets of standards and guidelines would be developed. For example, a single set of standards and guidelines could be developed for all public lands within a state, or sets of standards and guidelines could be developed for ecoregions within the state or ecoregions falling within more than one state.

Standards and guidelines would not normally be developed for areas smaller than a state. If conditions warrant more local standards and guidelines, they would be developed to supplement state or regional standards and guidelines. Local standards and guidelines would not supersede state or regional standards and guidelines.

The Proposed Action would establish principles to be addressed in the development of state or regional standards and guidelines. The guiding principles represent what the Department has identified as the resource concerns and types of management practices that must be considered in the development of state or regional standards and guidelines. The guiding principles for the development of state or regional standards are intended to provide focus on the minimum soil and vegetation conditions required for rangeland ecosystem health. The guiding principles for the development of state or regional guidelines provide focus on the consideration of management practices that are necessary to meet certain legal mandates and to achieve and maintain rangeland health.

The BLM state directors, in consultation with multiple resource advisory councils, would be required to develop standards and guidelines that are consistent with the national requirements and the guiding principles. It is anticipated that there may be a need to add additional standards and guidelines consistent with the national requirements to reflect the state or regional resources, the character of the public lands, local livestock management practices, and community interests. Multiple resource advisory councils and their resource teams and technical review teams would play a critical role in designing standards and guidelines to meet conditions encountered within the specific state or region. The multiple resource advisory councils and related input teams would facilitate the open discussion of standards and guidelines and would ensure that the standards and guidelines for grazing administration are developed in light of all involved public land and resource uses and concerns.

The Proposed Action includes a provision for fallback minimum standards and guidelines that would become effective 18 months after the effective date of the final rule in the event that

state or regional standards and guidelines are not complete. The fallbackminimum standards and guidelines would remain in effect until state or regional standards and guidelines are completed.

The fallbackminimum standards are based on indicators of soil stability and watershed function, distribution of nutrients and energy, and the ability for plant communities to recover. These three categories of indicators, when considered in combination, have been found to be key in assessing rangeland health. The standards are generally based on the findings of the Committee on Rangeland Classification presented in "Rangeland Health" (National Research Council 1994).

The fallbackminimum guidelines would restrict management practices to those activities, consistent with legal mandates, that assist in achieving or maintaining rangeland health. The fallbackminimum guidelines include the requirement that grazing management practices be implemented that assist in the recovery of threatened or endangered species, or assist in preventing the listing of species identified as candidates for threatened or endangered species. This guideline is necessary to avoid the impacts associated with the listing of more species as threatened or endangered. A second guideline would require that grazing practices be implemented that would assist in attaining and protecting water quality consistent with the Clean Water Act. Other fallbackminimum guidelines would address implementing management practices, including levels, season, and duration of livestock use and the placement and design of certain range improvements, that would ensure achieving or maintaining rangeland health.

The Department recognizes that the proposed fallbackminimum standards and guidelines may not fit all situations. A provision has been included in the proposal that would allow BLM state Directors to adjust the fallbackminimum standards and guidelines, subject to approval of the Secretary, to fit state or local conditions. However, in tailoring the fallbackminimum standards and guidelines to more-local conditions, the BLM state Directors must ensure that the general purpose of each of the fallbackminimum standards and guidelines is met.

Implementation of the national requirements and standards and guidelines for grazing administration would be accomplished by incorporating actions that will achieve the requirements, standards and guidelines in land use plans or activity plans, and in the terms and conditions of grazing permits, leases, and other grazing authorizations. These actions would be incorporated in plans as they are prepared or amended. Terms and conditions of grazing permits and leases and other grazing authorizations would

1 be modified prior to the start of the next grazing year where the  
2 national requirements or established standards and guidelines are  
3 not being met.

4 All standards and guidelines, at any level, would be implemented  
5 subject to the National Environmental Policy Act of 1969 (42  
6 U.S.C. 4331 et seq.; NEPA) and conformance with BLM land use  
7 plans. The national requirements and guiding principles for  
8 state and regional standards and guidelines are analyzed in this  
9 draft EIS for Rangeland Reform '94. The fallback minimum stan-  
10 dards and guidelines are also analyzed in this draft EIS. Stan-  
11 dards and guidelines developed at the state or regional level  
12 will tier off the final EIS for grazing reform.

13 The BLM planning regulations direct that actions be in confor-  
14 mance with BLM land use plans. Accordingly, BLM intends to  
15 incorporate into management direction the provisions of the  
16 standards and guidelines that are in conformance with current  
17 land use plans. Standards and guidelines not conforming with  
18 existing land use plans would require plan amendments and  
19 additional NEPA analysis.

#### 20 ALTERNATIVES TO CONSIDER

21 The National Environmental Policy Act (NEPA) regulations (40 CFR  
22 1502.14) require rigorous exploration and objective evaluation of  
23 a range of alternatives, including those not within the  
24 jurisdiction of the agencies. The management and fee  
25 alternatives respond to significant issues identified during the  
26 scoping process and present a range of alternatives for analysis,  
27 as required under NEPA.

28 The following rangeland management alternatives are presented:

- 29 (1) Current Management (No Action)
- 30 (2) BLM-Forest Service Proposal (Proposed Action)
- 31 (3) Livestock Production
- 32 (4) Environmental Enhancement
- 33 (5) No Grazing

34 The following fee alternatives are presented:

- 35 (1) Current Fee Formula as set by the Public Rangelands  
36 Improvement Act (PRIA) (No Action)
- 37 (2) Modified PRIA
- 38 (3) BLM-Forest Service Proposed Action
- 39 (4) Regional Fees
- 40 (5) Federal Forage Fee
- 41 (6) PRIA with Surcharges
- 42 (7) Competitive Bidding



Management and fee alternatives considered but not analyzed in detail are covered in Chapter 2.

### **KEY ISSUES**

Issues relating to impacts to be addressed generally fell into one of five categories:

- ♦ Rangeland ecological conditions
- ♦ Resource use conflicts
- ♦ Social and economic issues
- ♦ Stewardship
- ♦ Agency practices

### **RANGELAND ECOLOGICAL CONDITIONS**

Many respondents wanted to ensure that the EIS analyzed the benefits of livestock grazing in addition to harmful effects. The ranching industry believes that much good has resulted from livestock grazing and that the loss of livestock as a management tool could harm soil and vegetation. Comments also suggested that to determine the impacts of national standards and guidelines, the diversity of the 17 western states must be reflected by more detail on competing resources, goals that need to be set, and regional standards and guidelines. Some respondents also believed that the full impacts would not be known unless the Federal Government set up a way to monitor success. Other respondents wanted BLM and the Forest Service to focus management on the rangelands needing improvement, rather than proposing an overall rangeland reform.

### **RESOURCE USE CONFLICTS**

The underlying opinion on use conflicts was that the EIS should analyze damage from all resource uses, not just grazing. This analysis would include such items as damage to riparian areas from wildlife versus livestock grazing. Respondents who considered ranchers to be stewards of the land believed that the EIS should analyze the potential for private landowners to restrict public access to federal land or to sell their property for subdivision and the effects of these actions on other resource users.

### **SOCIAL AND ECONOMIC ISSUES**

Many respondents were concerned about the effect of Rangeland Reform '94 on their communities. Stating that decisionmaking should consider social and economic stability along with

ecological effects, they recommended the EIS analyze impacts on such areas as the following:

- |                           |                  |
|---------------------------|------------------|
| - local tax base          | - communities    |
| - individual ranches      | - counties       |
| - loss of jobs            | - states         |
| - western culture/customs | - Nation         |
| - consumers               | - tourism        |
| - related industries      | - banks and FDIC |

Many comments requested that the EIS analyze the impacts of private land dependency on federal lands. Respondents also expressed concern that the proposal would economically harm public land ranchers and would thereby decrease the number of ranchers whose livestock graze on federal land. Ranchers were concerned that the total impacts would result in a decrease of their net and discretionary incomes, and many feared physical and economic dislocation as a result. Other respondents stated that the changes in rangeland management policies would not greatly affect the number of ranchers who could continue in the public lands grazing business. They believed that the short-term economic needs of the livestock industry should not be placed above sound resource stewardship.

#### **STEWARDSHIP**

Many respondents felt that good stewardship should lead to longer permit tenure and that shortening the length of permit tenure would provide a disincentive. Some respondents also believed the number of ranchers would decline, which would result in loss of wildlife habitat, recreation opportunities, access to federal land, and fire protection because ranchers have improved the management of these activities and resources.

#### **AGENCY PRACTICES**

Pervasive among the comments was the sentiment that the changes proposed under the BLM-Forest Service Proposed Action would represent a taking of private property rights. Comments repeatedly emphasized the issue of takings. Also requested was an analysis of the impact to agency budgets if changes were implemented, as well as the workload impacts for agency staff. Respondents believed that significant staff increases would be required to carry out the goals of this reform proposal. Respondents also requested that the EIS analyze the administrative costs of such items as shorter permit tenure and probable increases in the number of appeals filed. Major concerns were also expressed about the provision for conservation use, which some respondents believed would result in large blocks

1 of land being controlled by nongrazing, special interest groups.  
2 Suggested impacts to be analyzed included the potential for  
3 catastrophic wildfires and the loss of county revenue for lands  
4 in this status.

5 **ISSUES NOT ADDRESSED**

6 This EIS does not address several issues raised during scoping.  
7 Suggestions considered beyond the scope of this document included  
8 requests for an overhaul of BLM's wild horse and burro program,  
9 inclusion of animal damage control and participation by state  
10 agencies, the U.S. Fish and Wildlife Service, Bureau of Indian  
11 Affairs, and the National Park Service. These suggestions are  
12 too broad and beyond the scope of an EIS specific to rangeland  
13 reform. Suggestions that did not meet the purpose and need for  
14 rangeland reform included requests that BLM establish an internal  
15 appeals process and that the agencies use rangeland improvement  
16 dollars to acquire land.

17 One comment requested that House Resolution No. 2638, "The  
18 Northern Rockies Ecosystem Protection Act of 1993" be considered.  
19 This bill was deemed to be outside the scope of this document  
20 because it deals with designating wilderness areas in the  
21 northern Rocky Mountains.

22 A proposal to have states or counties manage federal rangelands  
23 was not considered because it did not satisfy the fundamental  
24 purpose and need of improving federal agency administration  
25 through changes in the regulations.

26 Also not considered were proposals that the Federal Government  
27 pay ranchers to graze their livestock or that public land be sold  
28 or given to federal permittees. One of the basic purposes of  
29 rangeland reform is to receive a fair return for the use of  
30 public lands, a criterion that neither of these proposals would  
31 have satisfied. A suggestion that grazing fees be based on  
32 individual allotment appraisals was not considered because its  
33 administration would be complicated, and inefficient.

34 BLM and the Forest Service considered each issue and concern  
35 raised during the scoping process for their relevance to the  
36 purpose and need. This EIS addresses the issues raised during the  
37 scoping process and gives the public another chance to review  
38 the Rangeland Reform '94 proposal and participate in the BLM and  
39 Forest Service decisionmaking processes.

CHAPTER 2  
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**CHAPTER 2**  
**DESCRIPTION OF ALTERNATIVES**

Chapter 2 describes in detail five rangeland management alternatives and seven grazing fee formula alternatives. These alternatives provide an array of management and fee formula options that respond to both the purpose and need and the issues listed in Chapter 1.

Management alternatives address management aspects other than fees of the BLM and Forest Service rangeland management programs, including standards and guidelines and 19 other elements of rangeland policy and regulations identified during agency reviews and scoping. Fee formula alternatives consist of different methods for setting grazing fees.

Thirty-five alternatives could be developed by combining the five management alternatives with the seven fee formulas. For clarity the five management alternatives and the seven fee formulas are presented separately in this chapter. But in Chapter 4, Environmental Consequences, each management alternative is combined with each of the seven fees, and the cumulative impacts are analyzed. Chapter 4 also includes an extensive analysis of a high (\$6.38), moderate (\$4.28), and low (\$1.86) fee combined with each of the management alternatives. (See analysis of impacts on economic conditions in Chapter 4 and the appendixes.)

**MANAGEMENT ALTERNATIVES**

Five management alternatives are analyzed in detail in this EIS:

- (1) Current Management (No Action)
- (2) BLM-Forest Service Proposed Action
- (3) Livestock Production (Increase livestock operator influence or control.)
- (4) Environmental Enhancement (Authorize livestock grazing only where it can be demonstrated that livestock grazing would not cause unacceptable conflicts with other resources).
- (5) No Grazing

Other management alternatives were evaluated but eliminated from detailed analysis for reasons described later in this chapter.

**MANAGEMENT ALTERNATIVE 1: CURRENT MANAGEMENT (NO ACTION)**

The Current Management alternative would continue existing policies, regulations, and management practices. (Table 2-1 summarizes key elements of this alternative.)



**NATIONAL REQUIREMENTS AND STANDARDS AND GUIDELINES**

BLM now has no comprehensive national requirements or rangeland management standards and guidelines. Some BLM field offices have been establishing standards and guidelines or their equivalent to address local rangeland management concerns. Different BLM field offices managing lands contiguous with each other or the Forest Service have at times applied different standards even within the same ecosystem and when dealing with the same permittees.

The Forest Service has national rangeland management policy and objectives (see Appendix A) and establishes standards and guidelines for rangeland management in national forest land and resource management plans.

**RANGELAND PROGRAM ADMINISTRATION**

The regulations that direct BLM and the Forest Service in administering their rangeland programs are found in 43 CFR 4100 for BLM and 36 CFR 222 for the Forest Service. The objectives of these regulations are to protect rangeland resources, to allow for the orderly use of rangeland, and to enable improvement of the federal lands. These goals have not been consistently met under current regulations and management. Current management does not meet the purpose and need described in Chapter 1. Current regulations include the following elements.

**Leasing**

To qualify for a grazing permit, BLM requires that permittees own or control (rent or lease) both livestock and base property. BLM regulations allow the leasing of base property and the later transfer of grazing privileges to qualified applicants.

BLM regulations now recognize only two legitimate types of private leases or agreements affecting public land grazing privileges. The first type is a base property lease and transfer of the federal grazing permit. In a base property lease, a federal grazing permittee leases private base property to another party, and upon BLM's approval, the federal permit is transferred to the base property lessee for the term of the lease.

The second type of private lease is a management lease, also called a pasturing contract or agreement. Under a management lease, BLM may authorize a federal grazing permittee to allow a second party's livestock to graze on public lands when the current permittee manages the livestock under the terms of the existing permit. For such leases, permittees must certify that they control the livestock that will graze on their allotments.

These two allowable types of private leases are not included in the regulatory definition of "subleasing" which is prohibited.

Subleasing is not allowed. Under current regulations, subleasing is an illegal act in which permittees agree either (1) sublease part of the allotment where second party does not control base property to allow a second party to graze livestock on the public lands where the permittee does not manage the livestock and the second party does not control the base property supporting the permit or lease, or (2) to allow livestock they do not own or control to graze on public lands. Subleases usually earn permittees a profit because the amounts permittees receive from them exceed the amounts they pay for their BLM leases.

The Forest Service requires permittees to own both the livestock grazed and the base property. Private leasing arrangements are not allowed.

#### Foreign Corporations

BLM currently requires that a permittee be a U.S. citizen or a corporation licensed to conduct business in the state it wants to graze in. The Forest Service requires that a permittee be a U.S. citizen or a corporation that is at least 80 percent owned by U.S. citizens.

#### Disqualification

Neither agency's current regulations allow a permittee or applicant to be disqualified from applying for or holding a permit because of misconduct or bad performance on another permit.

#### Prohibited Acts

BLM can cancel grazing permits for violations of the Bald Eagle Protection Act and the Endangered Species Act. Permittees who violate other laws that protect federal resources may be subject to civil or criminal penalties but not to the loss of their permits.

The Forest Service can cancel grazing permits when a permittee is convicted of violating federal or state environmental laws related to the grazing use authorized by the permit.

#### Grant Policy

BLM's current policy when authorizing grazing permits for "new" or unallocated forage, vacant allotments, or newly acquired public land is to give priority to existing BLM permittees in

proportion to their contributions or efforts resulting in the increased forage, or in proportion to their grazing preference that has been in suspended nonuse. If these priorities have been met or do not apply, BLM considers applicant qualifications for a permit, the need for the land in the ranch operation, and what operation would best administer the land and meet management objectives for the allotment. BLM does not currently consider past performance in complying with permit terms as a criterion.

The Forest Service has similar criteria for granting grazing privileges, but livestock permittee performance (management of current or prior grazing allotments) is not a primary consideration.

#### Permit Tenure

BLM and Forest Service grazing permits are issued for 10 years, except when (1) the land is pending disposal, (2) the land will be devoted to a public purpose that precludes a 10-year period, or (3) a shorter term is in the interest of sound resource management. Both agencies typically issue permits for the full 10-year period. Neither agency issues grazing permits for periods shorter than 10 years solely on the basis of an operator's performance.

#### Unauthorized Use

Sometimes called trespass, unauthorized use refers to use by livestock without agency authorization or contrary to the terms of a BLM or Forest Service grazing permit. BLM uses a three-tiered formula when assessing fines for unauthorized use:

- (a) Nonwillful: The average commercial grazing lease rate published by the National Agricultural Statistical Service (NASS) in the most recent June Enumerative Survey for the 11 western states. (In 1993 this rate was \$9.41 per AUM.)
- (b) Willful: Double the average commercial grazing lease rate.
- (c) Repeated Willful: Three times the average commercial grazing lease rate.

Incidental use is inadvertent unauthorized use that results in little or no resource damage. Currently BLM does not recognize this concept and must deal with incidental use as nonwillful unauthorized use, penalizing the permittee although no damage occurred.

The Forest Service recognizes two types of unauthorized grazing, excess use and unauthorized use. Excess use is livestock use

1 associated with a Forest Service grazing permit but outside the  
2 permitted area, season, or numbers. Excess use violates the  
3 conditions of the grazing permit and may result in the associated  
4 grazing permit being wholly or partly canceled or suspended (36  
5 CFR 222.4(4)). In addition, the Forest Service charges for excess  
6 use at the same rate (average commercial grazing lease rate) that  
7 BLM imposes under its current definition of nonwillful  
8 unauthorized use.

9 Unauthorized use is livestock use that is not authorized by or  
10 related to the use of any Forest Service grazing permit (with  
11 exceptions listed in 36 CFR 261.2) on Forest Service-administered  
12 lands. Unauthorized use is a prohibited act (36 CFR 261.7) and  
13 may be punished by fine or imprisonment (36 CFR 261.1b) In  
14 addition, the Forest Service may charge for forage consumed at  
15 the same rate as described for excess use.

#### 16 Nonuse

17 Current regulations allow BLM managers to approve or disapprove  
18 annual applications for nonuse. Nonuse occurs when all or a  
19 portion of the forage allowed for livestock under an approved  
20 permit is left unused for economic, resource protection, or other  
21 reasons. If the authorizing officer determines that all or part  
22 of the forage allowed for livestock must be used and after 2  
23 years the permittee has not used the forage, the permit can be  
24 canceled.

25 On an annual basis, the Forest Service may now authorize up to 3  
26 years of nonuse for an operator's personal convenience or  
27 multiple years of nonuse for resource protection. Either the  
28 Forest Service or permittees of Forest Service-administered land  
29 can initiate negotiations to keep livestock off an allotment for  
30 resource protection. The final decision, however, resides with  
31 the Forest Service.

#### 32 Suspended Nonuse

33 Current BLM regulations allow for a permittee's grazing  
34 preference to be held in two ways: in active use and in suspended  
35 nonuse. Active use is the amount of currently authorized  
36 livestock grazing use, based on the amount of forage expressed in  
37 animal unit months (AUMs) available for livestock grazing. The  
38 proper level of active use is generally determined through land  
39 use planning. Suspended nonuse is a term used for forage that at  
40 one time livestock could graze but that was later suspended from  
41 grazing by a decision or mutual agreement because the allotment  
42 did not grow enough forage to allow that much grazing. A  
43 permittee does not pay for AUMs held in suspended nonuse, but  
44 some banks lend money against the total amount of grazing



preference (active and suspended) shown on the permit. Suspended nonuse is rarely converted to active use.

The Forest Service has no suspended nonuse category in its permitting process.

#### Water Rights

Both agencies recognize the key role of the states in grazing-related water rights issues. Since the 1980s, BLM policy has been not to apply for water rights for grazing purposes (this policy was not universally applied). Generally, both agencies apply for rangeland improvement water rights under state law and protect private applications for water rights on lands they administer, although in some cases BLM does not. Where permittees and BLM complete water developments under cooperative agreements, BLM sometimes files as co-owner of the water rights. Where permittees finance the entire water development on BLM-administered land, they may file for sole ownership of the water right. The Forest Service files for sole ownership of the water right where permitted by state law whenever livestock water is developed on National Forest System lands.

#### Range Improvement Ownership

BLM grazing permittees may be authorized to install range improvements through range improvement permits. Under this type of authorization, permittees fund and are granted sole ownership of the improvements.

BLM and the Forest Service also complete range improvement projects in cooperation with livestock permittees. The agencies cooperate with grazing permittees to provide labor, equipment, and/or materials to build the project. In such cases, the agencies and the permittee develop a cooperative agreement that outlines responsibilities for building and maintaining the improvement. The agencies retain ownership of range improvements completed under cooperative agreements.

The Federal Government owns all permanent range improvements on Forest Service-administered land.

#### Range Betterment Fund Distribution

The Range Betterment Fund consists of the money collected from federal land grazing fees that is to be used for rangeland improvement.

Half of BLM grazing receipts are returned to BLM for range improvements. Half of these receipts (25 percent of total fees)



are returned to the BLM district of origin. The Secretary of the Interior then can allocate the other half (25 percent of total receipts) to any BLM field office as long as over a 5-year period each district receives an average of 50 percent of its total receipts from grazing fees. Normally BLM returns the entire 50 percent to the district of origin each year. Of the remaining 50 percent, 12.5 percent of fees from permits (Section 3 lands) and 50 percent of fees from leases (Section 15 lands) are returned to the state of origin. The remaining receipts from permits go to the U.S. Treasury.

Under Forest Service regulations, half of grazing receipts are returned to the Forest Service to be distributed to the region of origin, with regional foresters being able to assign half of that (25 percent of total receipts) to any forest within their region. The remaining 25 percent goes to the originating forest. Typically, however, the entire 50 percent is returned to the national forest of origin. The other 50 percent of Forest Service receipts go to the U.S. Treasury. Half of those receipts, or 25 percent of total grazing receipts, are disbursed to the counties of origin for roads and schools.

#### Range Betterment Fund Use

BLM currently uses Range Betterment Funds solely for labor, materials, and final survey and engineering of range improvement projects. Project planning, preliminary design, environmental review, and contract preparation must come from other funding sources. The Fiscal Year 1992 appropriations bill gave BLM a one-time use of some Range Betterment Funds for project planning for that fiscal year.

The Forest Service uses Range Betterment Funds for specific design, planning and building rangeland improvements.

#### Appeals

Under current BLM grazing regulations in 43 CFR 4160, appealed grazing decisions are automatically stayed--the implementation of such decisions is deferred--until appeals are resolved. But in an emergency the authorized officer can place such decisions in full force and effect to stop resource deterioration. The time needed to resolve appeals often extends up to 2 years or longer, whereas decisions placed in full force and effect take effect on the date specified in the decision, pending resolution of the appeal. The 43 CFR 4160 regulations conflict with the recently revised general provisions of 43 CFR 4.21, under which decisions automatically become effective after (at most) 75 days, unless a stay is granted by the Office of Hearings and Appeals upon a motion by the affected party.

Forest Service regulations do not allow a decision on the occupancy or use of National Forest System land under appeal to be automatically deferred or stayed (36 CFR 251.91). Decisions made under NEPA have an automatic 45-day stay if appealed (36 CFR 215). The appeal, however, must be resolved within the 45-day period.

#### Grazing Advisory Boards

Grazing advisory boards were authorized by the Federal Land Policy and Management Act of 1976, but this provision of the Act expired on December 31, 1985, and has not been renewed. Under the Federal Advisory Committee Act and the implementing regulation in 41 CFR 101-6.10, the National Forest Management Act of 1976, and the Food and Agriculture Act of 1977, BLM and the Forest Service can continue to set up boards reflecting a variety of viewpoints and resource interests to give advice on rangeland management.

The Forest Service does not now use grazing advisory boards. Although the provision of FLPMA authorizing grazing advisory boards expired in 1985, the Forest Service regulation authorizing these boards is still on the books. The Forest Service may use resource advisory boards to provide input into forest planning. Additionally, all interested individuals and state, county, and federal agencies are allowed to participate in forest planning and project decisions in accordance with NFMA and NEPA.

BLM reestablished grazing advisory boards in response to a Secretarial notice of May 14, 1986. Grazing advisory boards advise BLM field offices on livestock grazing-related questions that arise in preparing activity plans and spending Range Betterment Funds. Such boards consist of five to eight members, who are permittees or lessees elected by their peers. Typically the areas represented by BLM grazing advisory boards conform to district office administrative boundaries. In some states, grazing advisory boards also administer and distribute grazing fee receipts returned to the states and counties. This function is authorized by the states, not by federal regulations.

#### Suitability Criteria

Suitability criteria are factors used to determine whether an area can or should be grazed by livestock. Such factors typically include the presence or absence of forage, water, and sensitive resources. BLM has no agencywide suitability criteria, but such criteria are often considered at local land use and activity plan levels.

Required by regulation (36 CFR 219.20), Forest Service suitability criteria are set at the forest plan and allotment levels.

#### Service Charge/Transaction Fee

BLM grazing regulations require a \$10 service charge for each crossing permit, transfer of grazing preference, and replacement or supplemental billing notice, except for actions initiated by the authorizing officer. The Forest Service charges \$35 under some circumstances if a permittee wants to split a billing period but no fee for the routine paperwork of administering a grazing permit.

#### Rangeland Ecosystems

Both BLM and the Forest Service manage rangeland ecosystems, but administration is broken up according to forest, resource area, district and state lines. Both agencies are engaged in an ongoing effort to establish more rigorous, coordinated, ecologically based policies and procedures to carry out their multiple use and sustained yield mandates. But neither BLM nor the Forest Service has regulations specifically addressing the use of an ecosystem approach to managing rangelands.

#### Special Status Species

Both BLM and the Forest Service are committed to managing for the recovery of threatened and endangered species and their habitats. Agency policies and the Endangered Species Act require the use of all methods and procedures needed to bring all species and their habitats to a point of recovery where the provisions of the Endangered Species Act are no longer required.

Policy requires that BLM and the Forest Service ensure that actions authorized, funded, or carried out do not contribute to the need to list a sensitive species as threatened or endangered. Furthermore, BLM and the Forest Service will carry out management in a manner that promotes the conservation of candidate species and their habitats by the use of all methods and procedures needed to remove threats to their continued existence or habitats. BLM and Forest Service have policies requiring cooperation with all state and federal agencies when it is determined that a special status species may be affected by a proposed action.

Subsequent actions under Current Management that might affect federally listed species or their designated critical habitats would be subject to formal consultation with the Fish and Wildlife Service or the National Marine Fisheries Service

1 pursuant to Section 7 of the Endangered Species Act. Similarly,  
2 conferences will be conducted for species that are proposed for  
3 federal listing. For purposes of impact analysis on a large  
4 scale, federally listed species affected by livestock grazing in  
5 the study area, will be treated in this EIS as though  
6 significantly affected by the alternatives.

7 BLM and Forest Service will consult on all actions tiered to this  
8 document as discussed in this chapter. This tiered development  
9 of implementation actions requires that analysis of the effects  
10 of those actions that might affect Endangered Species Act  
11 compliance be completed as part of developing each implementation  
12 plan. Under Current Management, the agencies would continue  
13 their trend toward developing plans and consultations on a  
14 species rangewide or ecosystem-wide basis. Neither this document  
15 nor its biological opinions from the Fish and Wildlife Service  
16 and the National Marine Fisheries Service are intended to replace  
17 any part of the requirements under Section 7 of the Endangered  
18 Species Act for consultation on actions developed at the regional  
19 level that might affect federally listed species.



**MANAGEMENT ALTERNATIVE 2: BLM-FOREST SERVICE PROPOSED ACTION**

Alternative 2 is the Proposed Action of BLM and the Forest Service, which would respond to the purpose and need described in Chapter 1 by changing many elements of the agencies' current rangeland policies, regulations, and management practices. (Table 2-2 summarizes key elements of this alternative.) The Proposed Action includes national requirements that provide the basis for developing state or regional standards and guidelines for managing livestock grazing in rangeland ecosystems administered by BLM. The Proposed Action would also establish more consistent BLM and Forest Service management programs to improve ecological conditions while maintaining opportunities for long-term sustainable development. The proposed fee formula would obtain for the public a fair payment for grazing livestock on public land.

**NATIONAL REQUIREMENTS AND STANDARDS AND GUIDELINES**

Under the Proposed Action, BLM would adopt and implement national requirements for public rangelands and regional standards and guidelines to assure that livestock grazing is conducted consistently and in accordance with proven principles already being successfully applied in rangeland ecosystems. Standards and guidelines would be aimed at maintaining and restoring ecosystem health. Management practices that diminish ecosystem health would be modified or eliminated, and activities promoting ecosystem health would be implemented. Information contained in the National Research Council report (National Research Council, 1994) was considered in developing the proposed direction for development of state or regional standards and guidelines.

BLM would implement standards and guidelines in a variety of ways. For example, some standards and guidelines would be implemented through design and contract specifications for range improvements. Others would be implemented through terms attached to grazing permits and related authorizations for the next grazing year. Failure to comply with such terms could result in a permit being canceled; grazing systems, stocking levels, or seasons of use being modified; or other changes being made.

Some areas may require total rest from livestock grazing until desired resource conditions are reached. Where an area is not progressing toward meeting desired conditions, BLM would immediately act to correct the situation before the next grazing season.

State or regional standards and guidelines would be prepared to ensure that management of livestock grazing is sensitive to the resources of specific ecoregions. These state or regional



standards and guidelines would be incorporated into BLM resource management plans following completion of needed NEPA analyses and documentation. State or regional standards and guidelines would not normally be developed for areas smaller than a state. If conditions warrant more local standards and guidelines, they would be developed to supplement state or regional standards and guidelines. Local standards and guidelines would not supersede state or regional standards and guidelines.

The Forest Service formulates standards and guidelines for rangeland management, including livestock grazing, while preparing national forest land and resource management plans (forest plans) for each national forest and grassland. The Proposed Action would require that these forest plan standards and guidelines, and standards and guidelines from site-specific NEPA project decisions be made part of the conditions of term grazing permits. If no forest plan has been prepared or a plan lacks standards and guidelines for livestock grazing and no project decision has been made, a temporary permit would be issued for up to 3 years until the forest plan is completed or project decision is issued. Failure to comply with forest plan standards and guidelines would violate the conditions of the grazing permit and could result in livestock numbers being reduced or grazing permits being canceled.

#### **BLM National Requirements and Standards and Guidelines**

##### **Definitions**

The following definitions, standards, and guidelines would apply to all BLM lands used for livestock grazing:

**Properly functioning uplands:** Uplands function properly when vegetation and ground cover maintain soil conditions that can sustain natural biotic communities. The functioning condition of uplands results from the interaction of geology, soil, climate, water, biological activity, and landform.

**Nonfunctioning uplands:** Uplands are nonfunctioning when vegetation and ground cover are not maintaining soil conditions that can sustain natural biotic communities.

**Uplands functioning but susceptible to degradation:** These areas function properly, but because of livestock grazing or related management practices, the capability of vegetation or soil conditions to sustain natural biotic communities is threatened.

**Properly functioning riparian-wetland areas:** Riparian-wetland areas are functioning properly when enough vegetation, landform,

or large woody debris is present to dissipate the stream energy from high waterflows and thereby reduce erosion and water quality; filter sediment, capture bedload, and aid floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize streambanks against cutting; develop diverse ponding and channel characteristics to provide the habitat and water depth, duration, and temperature needed for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is a result of interaction among geology, soil, water, vegetation, and animals.

**Nonfunctioning riparian-wetland areas:** Riparian-wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate the stream energy of high flows and are thus not reducing erosion, improving water quality, and functioning as described above. The absence of physical attributes such as a floodplain where one should be is an indicator of nonfunctioning condition.

**Wetland-riparian areas that are functioning but susceptible to degradation:** Riparian-wetland areas that are in functioning condition but have a soil, water, or vegetation attribute making them susceptible to degradation.

#### **National Requirements for Grazing Administration**

Grazing-related plans and activities on public lands shall incorporate, as applicable, the following:

(1) grazing practices that maintain or achieve healthy, properly functioning ecosystems;

(2) grazing practices that enhance or maintain properly functioning riparian systems;

(3) grazing practices that maintain, restore or enhance water quality and result in water quality that meets or exceeds State water quality standards will be implemented; and

(4) grazing management practices that assist in the maintenance, restoration or enhancement of the habitat of threatened or endangered, and Category 1 or 2 candidate species.

When management practices do not meet the requirements of this section or the standards and guidelines, the authorized officer would take appropriate action before the start of the next grazing year.

#### **Standards and Guidelines for Grazing Administration**

BLM state directors would be responsible for the development of standards and guidelines for grazing administration for the states or regions under their jurisdiction. In consultation with multiple resource advisory councils, each state director would determine the appropriate geographical area for which such standards and guidelines would be developed and implemented.

The public would be provided opportunity for involvement in the development of state or regional, or local, standards and guidelines.

State or regional standards and guidelines, and, local standards and guidelines where they are determined by the authorized officer to be appropriate, would be developed or amended in consultation with Bureau of Land Management multiple resource advisory councils, Indian tribes, and other federal land management agencies responsible for the management of lands and resources within the region or area under consideration.

At a minimum, state or regional standards for rangeland health would address indicators of the following:

- (1) soil stability and watershed function;
- (2) the distribution of nutrients and energy; and
- (3) plant community recovery mechanisms.

At a minimum, state or regional guidelines for grazing administration would address the following:

(1) Grazing management practices to be implemented to assist the recovery of threatened or endangered species, and prevent species listed as Category 1 or 2 from becoming threatened or endangered.

(2) Grazing management practices to be implemented to protect public health and welfare, maintain, restore or enhance water quality, and result in water quality which is necessary to meet or exceed State water quality standards.

(3) Periods of critical plant growth and regrowth and the need for, and the general timing and duration of, periods of rest from livestock grazing.

(4) Situations in which continuous season-long grazing would be consistent with achieving properly functioning condition.

(5) Selection criteria and general design standards for the development of springs, seeps, and other projects affecting water

and associated resources, that will maintain or enhance the ecological values of those sites.

(6) Situations in which grazing will be authorized on designated ephemeral (annual and perennial) rangelands, including the establishment of criteria for minimum levels of production, minimum residual growth to remain at the end of the grazing season, and the protection of perennial vegetation.

(7) Criteria for the protection of riparian-wetland areas, including the location, or need for relocation or removal, of livestock management facilities (corrals or holding facilities, wells, pipelines, fences) outside riparian-wetland areas, or the modification of livestock management practices (for example, salting and supplement feeding).

(8) Utilization or residual vegetation targets which will:

(i) maintain, improve, or restore both herbaceous and woody species (where present or potential exists) to a healthy and vigorous condition and facilitate reproduction and maintenance of different age classes in the desired riparian-wetland and aquatic plant communities; and

(ii) leave sufficient vegetation biomass and plant residue (including woody debris) to provide for adequate sediment filtering and dissipation of stream energy for bank protection.

In the absence of state or regional standards, and 18 months after the effective date of the final rule, the authorized officer would take appropriate action where a preponderance of evidence indicates that the following standards are not being met:

(1) The soil A-horizon is present and unfragmented, and the soil is developed or accumulating on site. Rills and gullies are absent, or if present, they have blunted and muted features. There is no visible scouring, sheet erosion, and/or soil sediment deposition.

(2) Plants are well distributed across the site, and photosynthetic activity occurs throughout the growing season. A uniform distribution of litter is evident. The plant community structure results in rooting throughout the available soil profile.

(3) Plants display normal growth forms and vigor. The plant communities display a complete range of age classes.



(g) In the absence of the completion of state or regional guidelines within 18 months after the effective date of the final rule, the authorized officer would ensure that all grazing-related activities conform with the following:

(1) Grazing management practices will assist the recovery of threatened or endangered species, and prevent candidate species, Category 1 or 2, from becoming threatened or endangered. Emphasis will be toward maintaining or improving plant and animal habitat to avoid future listing.

(2) Grazing practices will maintain, restore or enhance water quality and assist in the attainment of water quality which meets or exceeds State standards.

(3) Grazing schedules will include periods of rest during times of critical plant growth or regrowth. The timing and duration of rest periods will be determined by the local authorized officer administering the grazing authorization.

(4) Continuous season-long grazing will be authorized only when it has been demonstrated to be consistent with achieving properly functioning condition and meeting identified resource objectives.

(5) Development of springs and seeps or other projects affecting water and associated resources will be designed to maintain or enhance the ecological values of those sites.

(6) Grazing will be authorized on designated ephemeral (annual and perennial) rangeland only if reliable estimates of production have been made, an identified level of annual growth or residue to remain on site at the end of the grazing season has been established, and adverse effects on perennial species will be avoided.

(7) Livestock management facilities (corrals or holding facilities, wells, pipelines, fences) or livestock management practices (salting and supplement feeding) will be located outside riparian-wetland areas wherever possible. Where standards are not being met, appropriate action, which may include the relocation or removal of the facilities or modification of the practices, will be taken.

(8) Utilization or residual vegetation targets will be established and applied which will:

(i) maintain, improve, or restore a diversity of both herbaceous and woody species (where such species are present or would be present under normal conditions) to a healthy and



1 vigorous condition and facilitate reproduction and maintenance of  
2 different age classes in the desired riparian-wetland and aquatic  
3 plant communities, and

4 (ii) leave sufficient vegetation biomass and plant residue  
5 (including woody debris) to provide for adequate sediment filter-  
6 ing and dissipation of stream energy.

7 Standards and guidelines provided above could be modified by the  
8 responsible BLM state director, following approval by the  
9 Secretary, to address local ecosystems and management practices.

10 State, regional, or local standards and guidelines developed or  
11 implemented would be adhered to in the development of grazing-  
12 related portions of activity plans, and would be reflected in the  
13 terms and conditions of grazing authorizations. Where existing  
14 management practices fail to meet the applicable standards and  
15 guidelines, the authorized officer would take appropriate action  
16 prior to the start of the next grazing year.

17 Standards and guidelines for BLM's rangeland management program  
18 may be further developed and refined through a series of tiered  
19 analyses and decisions. The preceding fallback standards and  
20 guidelines would be mandatory and represent the minimum  
21 requirements that would apply to BLM and grazing permittees.  
22 These fallback standards and guidelines would serve as an  
23 umbrella for regional standards and guidelines, which typically  
24 would be developed for large areas or ecoregions in the West.

## 25 **RANGELAND PROGRAM ADMINISTRATION**

### 26 **Leasing**

27 In response to concerns that permittees who enter into private  
28 leases or agreements are unduly benefitting from their permits,  
29 BLM under the Proposed Action would collect surcharges for leases  
30 and agreements involving federal grazing.

31 BLM would continue to allow base property leases and the transfer  
32 of grazing preference and permits, but base property would have  
33 to be leased for at least 3 years. If BLM approves the transfer  
34 of a grazing permit attached to the base property, then the  
35 lessee would become the new BLM permittee. A 20 percent  
36 surcharge per federal animal unit month (AUM) would be assessed  
37 for all grazing permits that operate under a base property lease.

38 Permittees also would be allowed to enter into agreements to  
39 pasture another person's livestock (management lease) if they  
40 show proof of control (formal agreement transferring control),  
41 but BLM would assess a 50 percent surcharge per federal AUM for

all livestock authorized under a pasture agreement. No agreement would be needed for sons and daughters, nor would a surcharge be applied. For permits using a base property lease and a pasture agreement for the same land, the surcharge would amount to 70 percent per federal AUM. Levied as a percent of BLM's grazing fee, the surcharges are proposed as an efficient way for BLM to collect a landlord's share of the lease or management fee without the added administrative costs of accounting, processing, and enforcing these arrangements.

The Forest Service is not proposing surcharges because leasing is not authorized. Under the Proposed Action, as under Current Management, Forest Service permittees would have to own both livestock and base property to qualify for a term grazing permit except as authorized in the eastern states. Children of a Forest Service permittee may run up to 50 percent of their parent's permit under specified conditions.

#### Foreign Corporations

Current BLM policy allows foreign interests or corporations licensed to conduct business in the state in which grazing use is sought to hold grazing permits or licenses. BLM's policy would not change under the Proposed Action. Forest Service policy would change from currently requiring U.S. citizenship or being a corporation with at least 80 percent of its owners being U.S. citizens to the current BLM policy.

#### Disqualification

Under the Proposed Action, BLM would not issue new or additional permits to an applicant whose federal grazing permit has been cancelled during the prior 3 years due to violations of terms and conditions of the permit.

The Forest Service would not issue grazing permits to applicants whose federal grazing permits have been canceled in whole due to violations of laws, regulations, or conditions during the 36 months preceding the application.

For BLM permits and leases, disqualification would be limited to applications for new or more permits or leases. Renewal of other grazing permits would not be affected. In addition, an applicant's history of compliance with the terms of state permits would be considered only for state permits in the federal grazing allotment for which the permittee has applied. Partial suspension of a federal grazing permit or lease would not be grounds for disqualification because partial suspension of a permit or lease is used as a punitive measure when permittee actions are not found to justify canceling a permit.

Prohibited Acts

For BLM the Proposed Action would redefine prohibited acts to include violations of not just the Endangered Species Act and Bald Eagle Protection Act, but also the Wild Horse and Burro Act and other federal or state laws conserving and protecting natural or cultural resources and environmental quality. The proposal would include procedures in BLM regulations before 1984 and would make BLM and Forest Service regulations more consistent. After conviction or an administrative finding of violation by a permittee, the authorized officer could cancel or suspend a grazing permit if public lands are involved or affected and no further appeals of the conviction or determination are outstanding. The following are examples of prohibited acts:

- \* Molesting, harassing, injuring, poisoning, or causing death of livestock authorized to graze on these lands and removing authorized livestock without the owner's consent.

- \* Interfering with lawful uses or users, including obstructing free transit through or over public lands by force, threat, intimidation, signs, barriers, or locked gates.

- \* Violating state livestock laws or regulations relating to the branding of livestock; breed, grade, and number of bulls; health and sanitation requirements; and laws regarding the straying of livestock from permitted public land grazing areas that have been formally closed to open range grazing through the application of state, county or local laws.

- \* Violating federal or state laws or regulations concerning pest or predator control and conservation or protection of natural and cultural resources or the environment where public lands are involved or affected, including the following:

- \* Placing poisonous bait, traps, or hazardous devices designed to destroy wildlife without authorization;

- \* Applying or storing pesticides, herbicides, or other hazardous materials without authorization;

- \* Altering or destroying natural stream courses without authorization;

- \* Polluting water sources;

- \* Illegal taking or destroying, or aiding in the illegal taking or destroying of fish and wildlife; and

- \* Illegal removing or destroying of archeological resources.

Current Forest Service policy would not change. The Forest Service would cancel or suspend a grazing permit when a permittee is convicted of violating federal or state environmental laws related to authorized grazing on the permit.

#### Grant Policy

Under the Proposed Action, Forest Service policy and BLM regulations would be changed to add a new criterion for issuing grazing permits for "new" or unallocated forage to operators who have proven their ability to improve or maintain the condition of rangeland ecosystems.

#### Permit Tenure

The Proposed Action would retain current provisions for permit tenure. As under current regulations, ten-year term grazing permits would be issued to permittees who meet the criteria for holding a term grazing permit. A permittee who refuses to accept the conditions of an offered permit would not be authorized to graze livestock on federal lands. This is also unchanged from current regulations.

#### Unauthorized Use

The Proposed Action would allow nonmonetary settlements where unauthorized use is clearly unintentional and incidental and causes no resource damage, and where no substantial forage is consumed. This change would be consistent with Government Accounting Office findings and recommendations (GAO 1990). The three categories of fines described for Current Management would be retained.

The Forest Service would replace its term "excess use" with BLM's term "unauthorized use" and would also adopt BLM's three levels of financial penalties for unauthorized use--nonwillful, willful, and repeated willful. Under the Proposed Action, both agencies would define unauthorized use and apply financial penalties consistently.

#### Nonuse

The Proposed Action would address BLM's authority to allow conservation use. Currently BLM managers may approve conservation use (nonuse for protection of the federal range) only on an annual basis. Under the Proposed Action, conservation use could be authorized for extended periods when needed to meet resource management objectives and comply with standards and guidelines. Long-term conservation use could be included in the conditions of grazing permits for up to the full 10 year term of



1 the permit. Forage set aside for conservation purposes could not  
2 be used by other livestock operators. Nonuse requested solely  
3 for the personal convenience or economic benefit of a permittee  
4 could be approved for up to 3 years.

5 The Forest Service's current practice would not change. The  
6 proposed changes for BLM would make the two agencies consistent  
7 in their administration of nonuse.

#### 8 Suspended Nonuse

9 Under the Proposed Action, both agencies would continue to deal  
10 with suspended nonuse as they do under Current Management. BLM  
11 grazing permits could contain both active and suspended nonuse  
12 animal unit months, and the Forest Service would not include  
13 suspended nonuse on its grazing permits.

#### 14 Water Rights

15 The Proposed Action provides consistent direction for the BLM  
16 regarding water rights on public lands for livestock grazing  
17 purposes. It is intended to generally make BLM's policy  
18 consistent with Forest Service practice, and with BLM policy  
19 prior to being changed in the early 1980s.

20 Under the Proposed Action, any new rights to water on public  
21 lands to be used for livestock grazing on those lands will be  
22 acquired, perfected and maintained under State law, and in the  
23 name of the United States unless State law prohibits it.

24 The proposal does not create any new federal reserved water  
25 rights, nor does it affect valid existing water rights. Any  
26 right or claim to water on public land for livestock watering on  
27 public land by or on behalf of the United States remains subject  
28 to the provisions of 43 U.S.C. 666 (the McCarran Amendment), and  
29 section 701 of Public Law 94-579 (the Federal Land Policy and  
30 Management Act disclaimer on water rights). Finally, it does not  
31 change existing BLM policy on water rights for uses other than  
32 public land livestock grazing, such as irrigation, municipal or  
33 industrial uses.

#### 34 Range Improvement Ownership

35 Under the Proposed Action, BLM would hold title to all permanent  
36 range improvements built in the future on public lands. The  
37 ownership of existing range improvements would not be affected.  
38 Permittees would hold a financial interest in proportion to their  
39 contribution for range improvements built under cooperative  
40 agreement. Permittees would continue to own temporary structures  
41 such as a dip tanks, loading chutes, or portable water troughs



placed on public lands under permit. These proposed changes would make BLM policy consistent with current Forest Service policy.

#### Range Betterment Fund Distribution

The Proposed Action would change the way Range Betterment Funds are distributed. Under the Proposed Action, 25 percent of grazing receipts would be returned to the district of origin, and the remaining 25 percent would be returned to BLM state offices, which would then direct such funding on a priority basis for rangeland ecosystem rehabilitation and protection.

This change would make BLM's procedures equivalent to Forest Service policy, which allows the regional forester to distribute half of the Forest Service's portion of the Range Betterment Funds within the Forest Service region wherever needed to meet priority rangeland improvement objectives.

#### Range Betterment Fund Use

The Proposed Action would revise BLM and Forest Service regulations and policies to expand and clarify the use of Range Betterment Funds. The proposed changes would allow such funds to be used for a wider range of activities needed to maintain and improve rangeland ecosystem health. Under the Proposed Action, these funds could be spent for planning projects, conducting environmental analyses and compliance inspections, building range improvements, and monitoring the effectiveness of range improvements in achieving rangeland ecosystem management objectives.

#### Appeals

The Proposed Action would expedite the review of requests to stay rangeland management decisions and would make grazing regulations consistent with the appeals provisions in 43 CFR 4.21, which govern other BLM actions.

Under the Proposed Action, appellants could appeal a BLM rangeland management decision and stop the effect of that decision by filing an appeal and request for stay within 30 days of the issuing of a proposed decision. The Department of the Interior's Office of Hearings and Appeals (OHA) would then have 45 days from the end of the appeal period to review the motion for stay. If the OHA grants a stay, the appealed decision would not become effective until a ruling is issued on the appeal. If OHA does not grant a stay, the decision would be placed into full force and effect no later than 75 days after the BLM manager

issued the proposed decision. This change is more consistent with Forest Service provisions.

As under Current Management, the Proposed Action would continue to give BLM managers the authority to make a decision effective on the date specified for emergency protection of rangeland resources.

Forest Service appeal provisions would not change. Use and occupancy decisions of authorized Forest Service officers would continue to be implemented automatically unless a stay of the decision is requested and granted. Procedures to obtain a stay of Forest Service decisions would follow appeal regulations in 36 CFR 251.91. Decisions made under NEPA would have an automatic 45-day stay if appealed (36 CFR 215). But the appeal must be resolved within the 45-day period.

#### Grazing Advisory Boards

The Proposed Action would establish multiple resource advisory councils. These councils would be subject to the Federal Advisory Committee Act (5 U.S.C. Appendix; FACA). The multiple resource advisory councils would focus on the full array of ecosystem and multiple use issues associated with BLM-administered public lands.

A multiple resource advisory council would typically be established for each BLM administrative district but under this proposed rule the area of jurisdiction could be modified to permit ecosystem-based management and planning. A governor or multiple resource advisory council could petition the Secretary to authorize these councils at a BLM resource area level.

The multiple resource advisory councils would advise the Secretary of the Interior and Bureau of Land Management on matters relating to ecosystem and multiple use issues associated with public lands and resources under the administrative jurisdiction of the BLM. Multiple resource advisory councils would provide advice on preparation, amendment and implementation of land use management plans, and would be consulted in the preparation of standards and guidelines for grazing administration. If the multiple resource advisory council disagrees with a decision of the BLM manager relating to a subject on which the multiple resource advisory council has provided recommendations, the multiple resource advisory council could submit a request for review to the Secretary, who would provide a timely response.

Membership of the multiple resource advisory council would reflect a balance of views to ensure that the council represents the full array of issues and interests associated with public

land use, management, protection and an understanding of the federal laws and regulations governing public lands. Individuals would qualify to serve on a multiple resource advisory council because they have a commitment to collaborative effort, possess relevant experience or expertise, and they have a commitment to success and to applying the relevant law. An individual may serve on only one multiple resource advisory council.

Under the Proposed Action the multiple resource advisory councils could establish resource teams to enhance public and community-based involvement in public lands decision-making. Resource teams would provide local level input to the multiple resource advisory councils and would serve as fact-finding teams.

Local citizens could petition the multiple resource advisory council to establish a resource team, or a resource team could be established by the multiple resource advisory council on its own initiative. Technical review teams could also be established by the multiple resource advisory council.

The Forest Service currently does not use grazing advisory boards. Although these boards are authorized by regulations, the law authorizing them expired in 1985. Under the Proposed Action, the reference to grazing advisory boards would be removed from Forest Service regulations.

The Forest Service, however, does have authority to set up advisory boards consisting of a variety of resource interests and viewpoints. The Forest Service may use resource advisory boards to gain input to forest planning. All interested people and state, county, and federal agencies are given the opportunity to participate in forest planning and project decisions in accordance with National Forest Management Act and National Environmental Policy Act.

#### Suitability Criteria

Suitability criteria are factors used to determine whether an area can or should be grazed by livestock. Such factors typically include the presence or absence of forage, water, and sensitive resources. As under Current Management, BLM would have no agencywide suitability criteria, but such criteria would often be considered at local land use and activity plan levels.

Required by regulation (36 CFR 219.20), Forest Service suitability criteria under the Proposed Action would continue to be set at the forest plan and allotment levels as under Current Management.

#### Service Charge/Transaction Fee

Under the Proposed Action, the Forest Service would assess service charges or transaction fees for permittee-requested actions that require permit processing and supplemental billings. BLM would add service charges for applications made solely for temporary nonuse or conservation use. Forest Service and BLM fee practices would then be consistent. A service charge would be assessed for each crossing permit, transfer of grazing preference, application solely for nonuse, and each replacement or supplemental billing notice except for actions initiated by the authorized officer. The service fee would offset the costs of processing such applications.

### Rangeland Ecosystems

The Proposed Action would improve the current methods of making rangeland decisions to better integrate all of the biologic, cultural, social, and economic factors needed to maintain or restore ecosystems. Both agencies would implement policies to manage rangeland resources using an ecosystem approach.

Management attention would shift from narrow, short-term resource-specific issues toward broader objectives aimed at restoring or maintaining desired landscape conditions, environmental health, social amenities, and sustained economic well-being, all products of properly functioning ecosystems.

BLM would implement this approach in two ways: (1) through national requirements and state or regional standards and guidelines that would ensure that livestock would graze in a manner compatible with properly functioning ecosystems and (2) through regulation changes that would reform the administration of the rangeland program to implement livestock management to speed up the restoring and improving of western rangelands.

The Forest Service would implement the ecosystem approach by changing its regulations to establish the authority and direction for managing rangeland resources and making site-specific rangeland project decisions on the basis of a landscape analysis of rangeland ecosystems subject to National Environmental Policy Act compliance. These decisions would be designed to accomplish specific, on-the-ground purposes or results that implement the programmatic management direction in the forest plan. Rangeland project decisions may include maintaining or modifying plant communities or other resource conditions, rangeland improvements, and authorizing livestock grazing.

Implementing ecosystem management may require permittee participation in resource monitoring and inventory. This approach would give the Forest Service and permittee greater

flexibility to adjust annual operations to meet ecosystem objectives established in the landscape analysis.

### Special Status Species

Requirements of the Endangered Species Act and agency policy as discussed in the Current Management section of this chapter will continue to be implemented under this alternative.

### Fee Incentives

In recent years the Department of the Interior has considered several proposals for incentive-based grazing fees targeted at encouraging good stewardship of the public lands. The Department intends to move forward in the preparation of a separate rule addressing incentive-based grazing fees in the near future. That proposed rule will provide for a 30 percent incentive fee reduction and will set forth the eligibility criteria for the incentive fee. In preparation for the development of an incentive-based fee, a provision has been included in the Proposed Action that would substitute a base value of \$3.50, beginning in the year 1997, in the event that the Department has not completed a separate rulemaking establishing criteria and procedures for the implementation of an incentive fee formula. The incentive would be a 30 percent discount from the fee calculated using the proposed \$3.96 base value.



**MANAGEMENT ALTERNATIVE 3: LIVESTOCK PRODUCTION**

The Livestock Production alternative would place more control of rangeland management in local communities. (Table 2-3 summarizes key elements of this alternative.) BLM and Forest Service would continue to fulfill their responsibilities under laws and regulations. A goal of this alternative is to meet interdisciplinary resource objectives through increased cooperation and shared responsibility for good stewardship among BLM, the Forest Service, and the livestock industry. Local community involvement in grazing advisory boards would play a lead role in making decisions about public rangelands management planning, implementation, and evaluation.

The Livestock Production alternative would reward ranchers who are good stewards of the federal lands. As under other alternatives, regulation changes (described in detail later in this section) would make BLM and Forest Service program administration more efficient and consistent. These changes in regulations or policies would improve the agencies' abilities to manage federal land.

**NATIONAL REQUIREMENTS AND STANDARDS AND GUIDELINES**

Under the Livestock Production alternative, BLM would develop standards and guidelines at the regional level with strong permittee and grazing advisory board involvement. Regional standards and guidelines would be incorporated into BLM's land use plans. As under Current Management, the Forest Service would maintain national policy and objectives and would establish local standards and guidelines within forest plans.

**RANGELAND PROGRAM ADMINISTRATION**

**Leasing**

Under the Livestock Production alternative, the Forest Service would allow base property leases and management leases (pasture agreements), and Forest Service regulations would then conform to BLM current regulations. All leases would be issued for at least 1 year. Permittees would be allowed to graze another person's livestock if they can prove that they control the livestock. Local grazing advisory boards would determine the validity of the leases.

**Foreign Corporations**

BLM and the Forest Service would prohibit foreign corporations from holding federal grazing permits under the Livestock Production alternative.

Disqualification

To acquire a federal grazing permit under the Livestock Production alternative, applicants would need a satisfactory record of performance as determined by local grazing advisory boards. In addition, both agencies would disqualify permittees from holding federal grazing permits if they have had permits canceled for violating agency regulations.

Prohibited Acts

Under the Livestock Production alternative, both agencies would enforce prohibited acts as they do under Current Management. BLM grazing regulations would allow imposing penalties for violating the Bald Eagle Protection Act and the Endangered Species Act, and the Forest Service would control prohibited acts through existing law enforcement regulations and grazing permit conditions.

Grant Policy

The Livestock Production alternative would add another criterion in issuing permits to operators who have shown that they can improve the condition of rangeland ecosystems.

Permit Tenure

Under the Livestock Production alternative, the length of permits would be determined by permittee performance as follows:

- ♦ 20 years for a documented record of substantial compliance with terms of permits and management of operations to achieve or maintain interdisciplinary resource objectives. (This change would require a change in the Federal Land Policy and Management Act.)
- ♦ 10 years for the lack of a documented record of substantial compliance with terms of permits.

Unauthorized Use

Under the Livestock Production alternative both agencies would allow nonmonetary settlements where unauthorized use is clearly unintentional, incidental, and nondamaging to the land, and where no substantial forage is consumed. In addition, the unauthorized use animal unit month (AUM) fee would be the same as the nonwillful fee that would be assessed under both the Proposed Action and Current Management. But fees would not be increased for willful or repeated willful unauthorized use.

Nonuse

BLM and the Forest Service under the Livestock Production alternative could authorize up to a 5-year block of nonuse for permittee personal convenience and year-to-year nonuse for resource protection.

#### Suspended Nonuse

Under the Livestock Production alternative, both agencies would continue to deal with suspended nonuse as they do under Current Management. BLM grazing permits could contain both active and suspended nonuse animal unit months, and the Forest Service would not include suspended nonuse on its grazing permits.

#### Water Rights

Under the Livestock Production alternative neither agency would protest water right filings by federal permittees on public lands. This change would apply only to future filings. Additionally, under this alternative, neither agency would file for water rights.

#### Range Improvement Ownership

Under the Livestock Production alternative, both BLM and the Forest Service would hold title to future range improvements, and permittees would hold financial interest to improvements in proportion to their contributions.

#### Range Betterment Fund Distribution

Under Livestock Production, 50 percent of all grazing fees collected would be returned to the forest or BLM district of origin. Payments to counties and the U.S. Treasury would not change.

#### Range Betterment Fund Use

Range Betterment Funds under Livestock Production would be used just as they are under Current Management except that grazing advisory boards would determine spending priorities, which would mainly focus on range improvement projects benefitting livestock.

#### Expedited Appeals

Under the Livestock Production alternative, both agencies would deal with full force and effect as they do under Current Management. Forest Service regulations would not allow a decision under appeal to be automatically deferred (36 CFR 251). Decisions made under National Environmental Policy Act would have

an automatic 45-day stay if appealed (36 CFR 215), the appeal would have to be resolved within the 45-day period. Unless placed in full force and effect in an emergency to stop resource deterioration, a BLM manager's appealed final grazing decisions would not be implemented until any appeal is resolved.

#### Grazing Advisory Boards

Both agencies under Livestock Production would have grazing advisory boards or, where suitable, combined grazing advisory boards for Forest Service- and BLM-administered lands in the same areas. With expanded roles in public involvement, planning, decisionmaking, monitoring, and setting resource management objectives, grazing advisory boards would recommend policies more suitable to local areas through review of the following:

- Qualifications for holding permits and licenses
- Livestock ownership requirements
- Base property requirements
- Upper and lower limits on number of livestock permitted
- Priorities for spending Range Betterment Funds
- Criteria for evaluating the validity of leases
- Local standards and guidelines for livestock management
- The need for and definition of suitability thresholds
- Rangeland ecosystem goals and objectives

Grazing advisory boards would cooperate with the agencies to promote the forming of livestock grazing associations and developing grazing agreements patterned after those used on national grasslands. A grazing agreement would be issued to the association as a single permit in place of issuing a permit to each operator. The grazing agreement would authorize the association to graze rangelands administered by the agencies and administer grazing permits subject to the agencies' rules, policies, and procedures. The associations would do the following:

- Control membership qualifications.
- Apportion permitted use to members.
- Enforce permit compliance using methods including suspension and cancellation of membership and grazing privileges.
- Resolve and manage unauthorized use.
- Collect grazing fees from members.
- Build and maintain rangeland improvements authorized by the agencies.
- Provide other permit and rangeland management services as negotiated with the agencies.

The costs of administering the grazing program and building agency-authorized improvements--normally the responsibility of

the agencies--would be credited against the fees collected by the grazing association up to 50 percent of the average total fee collected. Range Betterment Funds would not be returned to BLM from grazing fees collected under grazing agreements. This funding process would be patterned after the use of Conservation Practice Funds on national grasslands.

#### Suitability

As under Current Management, BLM under the Livestock Production alternative would have no agencywide criteria for suitability. But suitability thresholds might exist for local land use and activity planning. Forest Service suitability thresholds would be set at the forest plan or allotment level.

#### Service Charge/Transaction Fee

Under the Livestock Production alternative, BLM and Forest Service would eliminate all service charges and transaction fees.

#### Rangeland Ecosystems

Under the Livestock Production alternative, goals and objectives for rangeland ecosystems would be set at the local level through consultation with grazing advisory boards. Decisions would emphasize the human component of rangeland ecosystems.

#### Special Status Species

Requirements of the Endangered Species Act and agency policy as discussed in the Current Management section of this chapter will continue to be implemented under the Livestock Production alternative.



**MANAGEMENT ALTERNATIVE 4: ENVIRONMENTAL ENHANCEMENT**

The Environmental Enhancement alternative would shift the philosophical basis for livestock grazing from "livestock grazing will continue unless problems are documented through monitoring" to "livestock grazing will be authorized only where enough data shows resource condition standards and goals are being met." This alternative would focus on authorizing grazing where it is most acceptable in light of other resources and uses (Table 2-4 summarizes key elements of this alternative.)

Some areas would be closed to grazing: wilderness, critical habitat for threatened and endangered (T&E) species, developed recreation sites, and areas of unacceptable rangeland health. Grazing might, however, be allowed on areas with formerly unacceptable rangeland health when conditions improve and the intensity of proposed management would ensure that grazing would not degrade conditions.

This alternative may require amending existing legislation, such as the Wilderness Act of 1964, which allows livestock grazing. Following improvement in resource conditions, livestock grazing might be allowed to resume in some areas.

**NATIONAL REQUIREMENTS AND STANDARDS AND GUIDELINES**

The Environmental Enhancement alternative would have no national-level requirements but would have national-level standards and guidelines for both agencies. Regional minimum standards and guidelines, including desired plant community descriptions, would be established for BLM lands. For Forest Service-administered lands, additional detailed policy would be formulated to define ecological goals and acceptable limits of change for resource conditions. This new policy would complement the standards and guidelines now included in Forest Service land and resource management plans.

**STANDARDS AND GUIDELINES**

Under this alternative, BLM and the Forest Service would adopt and implement national standards and guidelines to assure that livestock grazing is conducted consistently and in accordance with proven principles already being successfully applied in rangeland ecosystems. Standards and guidelines would be aimed at maintaining and restoring ecosystem health. Management practices that diminish ecosystem health would be modified or eliminated. Activities promoting ecosystem health would be implemented.

BLM would implement standards and guidelines in a variety of ways. For example, some standards and guidelines would be

implemented through design and contract specifications for range improvements. Others would be implemented through terms attached to grazing permits and related authorizations. Failure to comply with such terms could result in a permit being canceled; grazing systems, stocking levels, or seasons of use being modified; or other changes being made.

Some areas may require total rest from livestock grazing until desired resource conditions are reached. Where an area is not progressing toward meeting desired conditions, BLM would immediately act to correct the situation.

The Forest Service would continue to formulate standards and guidelines for rangeland management, including livestock grazing, while it prepares national forest land and resource management plans (forest plans) for each national forest and grassland. This alternative would require that these forest plan standards and guidelines be made part of the conditions of term grazing permits and that annual grazing use and permit renewal depend on the permittee's following them. Failure to comply with forest plan standards and guidelines would violate the conditions of the grazing permit and could result in livestock numbers being reduced or grazing permits being canceled.

## National Requirements and Standards and Guidelines

### **Definitions**

**Properly functioning uplands:** Uplands function properly when vegetation and ground cover maintain soil conditions that can sustain natural biotic communities. The functioning condition of uplands results from the interaction of geology, soil, climate, water, biological activity, and landform.

**Nonfunctioning uplands:** Uplands are functioning improperly when vegetation and ground cover are not maintaining soil conditions that can sustain natural biotic communities.

**Uplands that are functioning but susceptible to degradation:** These areas function properly, but because of livestock grazing or related management practices, the capability of vegetation or soil conditions to sustain natural biotic communities is threatened.

**Properly functioning riparian-wetland areas:** Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate the stream energy of high waterflows, thereby reducing erosion and water quality; filter sediment, capture bedload, and aid floodplain development; improve flood-water retention and ground-

water recharge, develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and water depth, duration, and temperature needed for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is a result of interaction among geology, soil, water, and vegetation.

**Nonfunctioning riparian-wetland areas:** Riparian-wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows and thus are not reducing erosion, improving water quality, etc., as listed above. The absence of physical attributes such as a floodplain where one should be are indicators of nonfunctioning condition.

**Wetland-riparian areas that are functioning but susceptible to degradation:** Riparian-wetland areas that are in functioning condition but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

#### **National Standards and Guidelines**

1. Grazing management practices will be implemented to assist the recovery of threatened and endangered species and to prevent species listed as Category 1 or 2 from becoming threatened or endangered. Emphasis will be placed on maintaining or improving plant and animal habitat to avoid future listing.

2. Grazing practices (such as best management practices) that protect public health and welfare; maintain, restore, or improve water quality; and result in water quality that meets or exceeds state water quality standards will be implemented through conditions of permits and leases.

3. Grazing schedules will include rest periods during times of critical plant growth or regrowth. The timing and duration of rest periods will be determined by the local authorized officer administering the grazing authorization.

4. Where assessments or other data reveal that key resources or watershed functioning requirements are not being met because of livestock overuse, the authorized officer will adjust grazing use before the next grazing season and may require total rest.

5. Continuous season-long grazing will be authorized only when it has been shown to be consistent with achieving properly functioning condition and meeting resource objectives.

6. Pesticides will be used only on rangelands where target species are well defined, where there is a minimal risk to nontarget species and surface and ground water, and research or experience shows that other alternatives will not be effective.

7. Terms of each permit or lease will include numbers, kind, and class of livestock; seasons of use; period of deferment or rest; and other strategies needed to achieve resource objectives.

8. Springs, seeps, and other projects affecting water and related resources will be designed to maintain or improve the ecological and hydrological values of those sites.

9. Grazing will be authorized on designated ephemeral (annual and perennial) rangeland only if production has been reliably estimated, a level of annual growth or residue has been established to remain onsite at the end of the grazing season, and harmful effects on perennial species will be avoided.

10. Riparian-wetland objectives will be met by locating livestock management facilities (corrals or holding facilities, well, pipelines, fences) or livestock management practices (salting and supplemental feeding) outside riparian-wetland areas wherever possible. Where existing livestock management facilities or practices do not meet management objectives, BLM will take actions, which may include relocating or removing facilities or practices.

11. Utilization or residual vegetation targets will be established to do the following:

a. Maintain, improve, or restore both herbaceous and woody species (where present or potential exists) to healthy and vigorous condition and facilitate reproduction and maintenance of different age classes in the desired riparian-wetland and aquatic plant communities.

b. Leave enough vegetation biomass and plant residue (including woody debris) to allow adequate sediment filtering and dissipation of stream energy for bank protection.

#### Regional Standards and Guidelines

Standards and guidelines for BLM's rangeland management program may be further developed and refined through a series of tiered analyses and decisions. The preceding national standards and guidelines would be mandatory and represent the minimum requirements that would apply to BLM and grazing permittees. These national standards and guidelines would serve as an



umbrella for regional standards and guidelines, which typically would be developed for large areas or ecoregions in the West.

Regional standards and guidelines would be prepared when needed to ensure that management of livestock grazing is sensitive to the resources of specific ecoregions. These regional standards and guidelines would be incorporated into BLM resource management plans following completion of needed NEPA analyses and documentation. Regional standards and guidelines would be implemented in the same manner as national standards and guidelines.

More detailed, site-specific standards and guidelines might also be developed if needed. Consistent with national and regional standards and guidelines, they would represent the best science for managing the ecosystems involved.

#### **RANGELAND PROGRAM ADMINISTRATION**

##### **Leasing**

Under the Environmental Enhancement alternative, BLM would require ranchers to own base property and livestock to be granted permits. Leasing base property and water-base leases would not be authorized, and permittees could not pasture someone else's livestock. These changes would make BLM regulations consistent with current Forest Service practices, which would not change.

Both agencies, however, would continue to allow permittees with allotments containing intermingled private land to graze livestock they do not own under existing permitting provisions--exchange of use permits for BLM and private land permits for the Forest Service.

##### **Foreign Corporations**

As under the Proposed Action, the Environmental Enhancement alternative would require Forest Service regulations to conform with BLM regulations and eliminate the requirement that corporations holding grazing permits be owned by U.S. citizens. The requirements to hold either a BLM or Forest Service permit would be either U.S. citizenship or a business licensed to operate in the state.

##### **Disqualification**

Under the Environmental Enhancement alternative, both the Forest Service and BLM would prohibit permittees from holding grazing permits for up to 3 years if they have had any federal grazing permits canceled for violating laws or federal grazing



1 regulations. In addition, if one permit is canceled for  
2 violations of grazing regulations, all the permittee's federal  
3 grazing permits would be canceled. Permits could also be  
4 canceled for violations before the effective date of the new  
5 regulations.

#### 6 Prohibited Acts

7 Under the Environmental Enhancement alternative, as under the  
8 Proposed Action, a prohibited act would consist of the violation  
9 of any federal or state law or regulation conserving or  
10 protecting natural or cultural resources or environmental  
11 quality. Penalties for committing a prohibited act could include  
12 canceling or suspending of permits. This provision would apply to  
13 Forest Service and BLM permittees.

#### 14 Grant Policy

15 The Environmental Enhancement alternative would remove BLM and  
16 Forest Service provisions and criteria for allocating more forage  
17 to grazing operations. Forage could not be allocated above  
18 current preference or permitted numbers, even after desired  
19 ecological conditions are reached. Environmental Enhancement is  
20 the only alternative that would not allow for allocating more  
21 forage should it become available.

#### 22 Permit Tenure

23 The Environmental Enhancement alternative would retain current  
24 provisions on permit tenure. Ten-year term grazing permits would  
25 be issued to permittees who have records of substantial  
26 compliance with the terms of permits, including standards and  
27 guidelines, and who have helped maintain or achieve desired  
28 resource conditions on their allotments.

#### 29 Unauthorized Use

30 The Environmental Enhancement alternative would address  
31 unauthorized use in the same way as the Proposed Action.  
32 Nonmonetary settlements would be allowed where unauthorized use  
33 is clearly unintentional, incidental, and causes no resource  
34 damage, and where no substantial forage is consumed. This change  
35 would be consistent with Government Accounting Office findings  
36 and recommendations (GAO 1990). The three existing categories of  
37 fines described for Current Management would be retained.

38 The Forest Service would replace its term "excess use" with BLM's  
39 term "unauthorized use" and adopt BLM's three levels of financial  
40 penalties for unauthorized use--nonwillful, willful, and repeated

willful. Both agencies would define unauthorized use and apply financial penalties consistently.

#### Nonuse

The Forest Service and BLM, under the Environmental Enhancement alternative, would allow nonuse for up to the length of the term grazing permit or at most 10 years. Under the revised regulations, the authorized officer would place forage in nonuse status for the time specified by a permittee wanting to withdraw forage from livestock grazing for personal convenience; for improving wildlife habitat, riparian areas, or recreation; or for promoting general resource conservation. The other management alternatives would require authorized officer approval of nonuse, whereas under Environmental Enhancement, the agencies would automatically approve nonuse.

#### Suspended Nonuse

The Environmental Enhancement alternative would eliminate suspended nonuse from BLM grazing permits, making BLM consistent with the Forest Service. BLM would no longer need to keep a record of AUMs that were once but are no longer allowed for livestock grazing. Animal unit months (AUMs) of suspended nonuse attached to permits would be eliminated as permits are renewed or transferred.

#### water Rights

The Environmental Enhancement alternative is the same as the Proposed Action.

#### Range Improvement Ownership

The Environmental Enhancement alternative is the same as the Proposed Action.

#### Range Betterment Fund Distribution

Under the Environmental Enhancement alternative as under the Proposed Action, BLM regulations and policy would be changed to provide greater flexibility in distributing Range Betterment Funds. BLM state directors could distribute half of the Range Betterment Funds allocated to their states, and regional foresters would continue to have discretion to distribute half of Forest Service Range Betterment Funds. In both cases, the remaining half would be returned to the BLM district or Forest Service forest of origin. Funds could then be moved from where they were earned to where they might be needed for special

programs. This change would not affect payments to counties or the U.S. Treasury.

#### Range Betterment Fund Use

Like the Proposed Action, the Environmental Enhancement alternative would expand authorized uses for Range Betterment Funds for both Forest Service and BLM. Range Betterment Funds could then be used for project planning, layout and design, contract preparation, installation, easement acquisition, inspection, maintenance, modification, and monitoring effectiveness in meeting resource condition objectives. Range improvement projects include all projects designed to improve rangeland conditions, mitigate the impacts of livestock grazing on other resources, or meet resource objectives on public rangelands.

#### Expedited Appeals

Under the Environmental Enhancement alternative as under the Proposed Action, BLM managers would have broader authority to implement decisions in full force and effect and exempt certain administrative actions from the appeals process. Grazing decisions under appeal would not be automatically stayed. This change would be consistent with current Forest Service occupancy and use regulations and BLM regulations for nonlivestock-related decisions.

#### Grazing Advisory Boards

The Environmental Enhancement alternative would amend Forest Service and BLM regulations to eliminate provisions for grazing advisory boards. Joint BLM-Forest Service resource advisory councils would be set up on an ecoregion basis. These councils would consist of representatives of all interests and levels of government within the ecoregion. Environmental Enhancement is the only alternative that requires an advisory council on an ecosystem basis.

#### Suitability

Under the Environmental Enhancement alternative, BLM and the Forest Service would consider certain sensitive areas unsuitable for livestock grazing, including all areas not in proper functioning condition, all areas functioning but susceptible to degradation (until they are brought into proper functioning condition), and all areas whose functioning condition is unknown (until they are evaluated and determined to be in proper functioning condition). Also considered unsuitable for grazing would be Forest Service-administered lands that are not meeting

forest plan objectives due to livestock grazing or whose condition is unknown.

Other areas that would be closed to livestock grazing would be developed recreation sites, areas of national historic significance, designated wilderness areas, BLM wilderness study areas recommended as suitable for wilderness, Forest Service-recommended wilderness areas, and areas where livestock grazing conflicts with designated critical habitat for federally listed threatened or endangered species (for example, desert tortoise, or Pacific salmon). In addition, domestic sheep would not be allowed to graze in bighorn sheep range.

Under the Environmental Enhancement alternative, anyone with an interest in livestock grazing on Forest Service- or BLM-administered lands could petition the departmental secretary with jurisdiction to designate an area as unsuitable for livestock grazing or to terminate an unsuitability classification. The secretary would then have 8 months to conduct hearings and rule on the petition.

#### Service Charge/Transaction Fee

Under the Environmental Enhancement alternative, both BLM and the Forest Service would collect service charges and transaction fees to cover the cost of processing the paperwork. The agencies would require a service charge for each crossing permit, transfer of grazing preference, applications for temporary nonuse or conservation use, and replacement or supplemental billing notice, except for actions initiated by the authorizing officer.

#### Rangeland Ecosystems

The Environmental Enhancement alternative places greater emphasis on managing all uses, including livestock grazing, to sustain ecosystem biodiversity and ecological processes. This emphasis would be included in regulations and policy for the Forest Service and for BLM.

#### Special Status Species

Requirements of the Endangered Species Act and agency policy as discussed in the Current Management section of this chapter will continue to be implemented under Environmental Enhancement.



**MANAGEMENT ALTERNATIVE 5: NO GRAZING**

Under Alternative 5, No Grazing, all grazing privileges would be canceled, and all livestock would be removed from public lands over a 3-year phaseout period. (Table 2-5 summarizes key elements of this alternative.) Public lands would be managed for values other than livestock grazing. No new range improvement projects would be built to benefit livestock, and existing range improvements and land treatments would be maintained only if considered beneficial to other uses. Any structures considered harmful to other resource uses would be removed, and permittees with investments in cooperative range projects would be entitled to salvage rights. Owners of land adjoining federal lands would be responsible for preventing the unauthorized use of these federal lands. The agencies would not pay any costs for needed fencing. Range administration would concentrate on issuing crossing permits to or from nonfederal land inholdings and resolving unauthorized livestock use. None of the other livestock grazing management measures considered in the other four alternatives would be needed.

Under No Grazing, BLM and the Forest Service would reserve the right to use livestock to manage vegetation to achieve resource objectives. For example, sheep and goats might be used to control such noxious weeds as leafy spurge, or livestock might be used to stimulate the growth or sprouting of browse to improve forage for deer. Operations using such control methods would not gain grazing preferences or term permit status.

Livestock use would be permitted in a variety of ways, including the issuance of temporary permits or contracts that spell out the conditions of the permit. Fees might or might not be charged, depending on the objectives. In some cases the agencies would pay the livestock owner for the services received.

BLM and the Forest Service would both continue developing policies but not regulations on ecosystem management specifically for rangeland ecosystems. These policies could establish procedures for how and where livestock might be used as management tools to help achieve landscape or ecosystem objectives.

**NATIONAL REQUIREMENTS AND STANDARDS AND GUIDELINES**

Standards and guidelines would not be needed under No Grazing since grazing would not be an ongoing activity on federal rangelands. Regional or local policies and direction could be developed to guide the use of livestock as a vegetation treatment tool. Existing direction on the issuance and use of crossing permits would be continued although future modification may be



needed. Forest Plans would continue to have standards and guidelines for using livestock to manage vegetation for achieving other resource objectives.

#### **RANGELAND PROGRAM ADMINISTRATION**

##### **Leasing**

Leasing would not apply to the No Grazing alternative, since ownership of livestock used in vegetation treatment would not be an issue.

##### **Foreign Corporations**

Foreign interests would not apply to the No Grazing alternative. In vegetation treatment and with crossing permits, the ownership of the livestock would not be a question or factor of issuance.

##### **Disqualification**

Disqualification would not apply to the No Grazing alternative. Failure to comply with the conditions of crossing permits or vegetation treatment permits or contracts could disqualify a person or corporation from being issued future permits. Failure to comply with other environmental laws would be handled through the legal system.

##### **Prohibited Acts**

Prohibited acts would not apply to the No Grazing alternative. Since a person or corporation would not be issued a term permit, permits could not be canceled. Failure to comply with other environmental laws would be handled through the legal system.

##### **Grant Policy**

Grant Policy would not apply to the No Grazing alternative. The agencies would issue contracts for vegetation treatment under a competitive bid procedure.

##### **Permit Tenure**

All permits that would be issued for crossing or vegetation management would be temporary, usually for less than a year.

##### **Unauthorized Use**

Both agencies would enforce rules regarding unauthorized use of federal lands. Landowners grazing unfenced private or state lands adjoining federal lands would have to control their

livestock to avoid unauthorized use. The agencies would not contribute to fencing or other costs associated with controlling livestock.

This alternative would address penalties for unauthorized use in the same way as the Proposed Action. Nonmonetary settlements would be allowed where unauthorized use is clearly unintentional, incidental, and causes no resource damage, and where no substantial forage is consumed. This change would be consistent with Government Accounting Office findings and recommendations (GAO 1990). The three existing categories of fines described for Current Management would be retained.

The Forest Service would replace its term "excess use" with BLM's term "unauthorized use" and adopt BLM's three levels of financial penalties for unauthorized use--nonwillful, willful, and repeated willful. Both agencies would define unauthorized use and apply financial penalties consistently.

#### Nonuse

Nonuse would not apply to the No Grazing alternative. Temporary permits for crossing or vegetation treatment would be issued for a given number of livestock, and nonuse would not become a factor of administration.

#### Suspended Nonuse

Suspended Nonuse would not apply to the No Grazing alternative since it applies only to term permits, which would not be issued under this alternative.

#### Water Rights

water rights would not be an issue relating to grazing administration under the No Grazing alternative. There would be no permittees to file for water rights for livestock water developments on public lands.

#### Range Improvement Ownership

Under the No Grazing alternative, all range improvements would be owned by the Federal Government. Current permittees would have salvage rights for improvements they own on BLM-administered lands. On Forest Service-administered lands permittees would be reimbursed for their investment in certain improvements in accordance with their existing permits.

#### Range Betterment Fund Distribution

Under the No Grazing alternative, fees received for temporary crossing and vegetation treatment permits would be returned to the U.S. Treasury and counties according to existing policies. A Range Betterment Fund would not exist.

#### Range Betterment Fund Use

A Range Betterment Fund to invest in range and other types of improvements would not exist under the No Grazing alternative. Removing unwanted improvements would be the responsibility of the benefitting program (wildlife, recreation). New improvements needed to manage vegetation treatment would also be the responsibility of benefitting programs. Most of these improvements, such as electric fences or water troughs, would likely be temporary.

#### Expedited Appeals

As under the Proposed Action, grazing decisions under appeal would no longer be automatically stayed.

#### Grazing Advisory Boards

Under No Grazing, without broad-scale grazing, grazing advisory boards would not be needed.

#### Suitability

Suitability determinations would not be needed under No Grazing except where livestock are used as a management tool to achieve other resource objectives.

#### Service Charge/Transaction Fee

Service charges and transaction fees would generally not be needed under the No Grazing alternative. But a service charge would continue to be applied for trailing permits as specified in the current regulations.

#### Rangeland Ecosystems

Under No Grazing, BLM and the Forest Service would continue to develop methods and procedures for promoting ecosystem management. These methods and procedures would not consider general livestock use. Where needed, livestock would be used to help reach or maintain vegetation objectives.

#### Special Status Species

1 Requirements of the Endangered Species Act and agency policy as  
2 discussed in the Current Management section of this chapter will  
3 continue to be implemented under this alternative.

4 COMPARISON OF MANAGEMENT ALTERNATIVES

5 Table 2-6 provides a side-by-side comparison of the five  
6 management alternatives considered in detail, as well as a  
7 comparison of BLM and Forest Service rangeland management  
8 policies and regulations.

1

Table 2-6: DESCRIPTION OF THE MANAGEMENT ALTERNATIVES

2					
ELEMENTS	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
STANDARDS AND GUIDELINES	BLM-No FS-Yes	BLM-Yes FS-Yes	BLM-Yes FS-Yes	BLM-Yes FS-Yes	BLM-No FS-Yes
LEASING	BLM-Own or control  FS-Requires ownership	BLM-Own or control; add surcharges (except for sons and daughters) FS-Requires ownership	BLM-Own or control  FS-Own or control	BLM-Requires ownership  FS-Requires ownership	N.A.
FOREIGN CORPORATIONS	BLM-U.S. citizen or licensed to conduct business in state FS-U.S. citizen or corp 80% owned by U.S. citizens	BLM-U.S. citizen or licensed to conduct business in state FS-U.S. citizen or licensed to conduct business in U.S.	BLM-U.S. citizenship required FS-U.S. citizenship required	BLM-U.S. citizen or licensed to conduct business in U.S. FS-U.S. citizen or licensed to conduct business in U.S.	N.A.



ELEMENTS	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
DISQUALIFICATION	BLM-None FS-None	BLM-Can't apply for permit if any are canceled within last 3-yr FS-Can't apply for permit if any are canceled within last 3-yr	BLM-Grazing advisory board determines FS-Grazing advisory board determines	BLM-In addition to Proposed Action, all permits canceled FS-In addition to Proposed Action, all permits canceled	N.A.
PROHIBITED ACTS	BLM-Bald Eagle and ESA violations FS-Broad range of conditions	BLM-Broad range of conditions FS-Broad range of conditions	BLM-Bald eagle and ESA violations FS-Broad range of conditions	BLM-Broad range of conditions FS-Broad range of conditions	N.A.
GRANT POLICY	BLM-Prioritized; no performance criteria FS-Some criteria applied	BLM-Performance criteria first priority FS-Performance criteria first priority	BLM-Performance criteria first priority FS-Performance criteria first priority	BLM-No allocations of more forage FS-No allocations of more forage	N.A.

ELEMENTS	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRON- MENTAL ENHANCEMENT	NO GRAZING
PERMIT TENURE	BLM-10 yrs  FS-10 yrs	BLM-10 yrs  FS-10 yrs	BLM-10 yr min; up to 20 yrs-good stewardship FS-10 yr min; up to 20 yrs-good stewardship	BLM-10 yrs  FS-10 yrs	BLM- temporary: up to 1 yr  FS- temporary: up to 1 yr
UNAUTHORIZED USE	BLM-Three- tiered fee formula; no incidental use  FS-Two types, one fee; incidental use	BLM-Three- tiered fee formula; nonmonetary settlement FS-Three- tiered fee formula; nonmonetary settlement	BLM-One fee; nonmonetary settlement  FS-One fee; nonmonetary settlement	BLM-Three- tiered fee formula; nonmonetary settlement FS-three- tiered fee formula; nonmonetary settlement	BLM-Three- tiered fee formula; nonmonetary settlement FS-Three- tiered fee formula; nonmonetary settlement
NONUSE	BLM-Year-to- year, or for 2 yrs after decision FS-up to 3 yrs personal; up to term of permit for resource protection	BLM-up to 3 yrs personal; up to 10 yrs resource protection FS-up to 3 yrs personal; up to 10 yrs resource protection	BLM-up to 5 yrs personal; yr to yr resource protection FS-up to 5 yrs personal; yr to yr resource protection	BLM- automatic, up to 10 yrs nonuse FS- automatic, up to 10 yrs nonuse	N.A.

ELEMENTS	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRON- MENTAL ENHANCEMENT	NO GRAZING
SUSPENDED NONUSE	BLM-Carry on permit FS-None	BLM- Carry on permit FS-None	BLM-Carry on permit FS-None	BLM- Eliminate FS-None	N.A.
WATER RIGHTS	BLM-Mixed ownership subject to state law FS-federal ownership subject to state law	BLM-federal ownership of new water rights, subject to state law FS-same as BLM	BLM-Mixed ownership FS-Mixed ownership	BLM-same as Proposed Action FS-same as Proposed Action	N.A.
RANGE IMPROVEMENT OWNERSHIP	BLM-Mixed FS-federal	BLM-federal FS-federal	BLM-Mixed FS-Mixed	BLM-federal FS-federal	BLM-federal FS-federal
RANGE BETTERMENT FUND DISTRIBUTION	BLM-1/2 dist. of origin, 1/2 Sec. discretion FS-1/2 forest of origin, 1/2 Reg. For. discretion	BLM-1/2 dist. of origin, 1/2 st. director discretion FS-1/2 forest of origin, 1/2 Reg. For. discretion	BLM & FS-all to district of origin	BLM-1/2 dist. of origin, 1/2 st. director discretion FS-1/2 forest of origin, 1/2 Reg. For. discretion	BLM-No range betterment fund FS-No range betterment fund

ELEMENTS	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRON- MENTAL ENHANCEMENT	NO GRAZING
RANGE BETTERMENT FUND USE	BLM-Engineer & build  FS-Plan & build	BLM-Plan, engineer, build, & env. assess. FS-Plan, engineer, build, & env. assess.	BLM-Engineer & build  FS-Plan & build	BLM-Plan, engineer, build, & env. assess. FS-Plan, engineer, build, & env. assess.	N.A.
EXPEDITED APPEALS	BLM-Auto. stay upon appeal; FFE for resource protection FS-No auto. stay upon appeal for permit admin decisions	BLM-No auto. stay upon appeal  FS-No auto. stay upon appeal for permit admin. decisions	BLM-Auto. stay upon appeal; FFE for resource protection FS-No auto. stay upon appeal for permit admin. decisions	BLM-No auto. stay upon appeal  FS-No auto. stay upon appeal for permit admin. decisions	N.A.
GRAZING ADVISORY BOARDS	BLM-Yes  FS-No	BLM-Replace w/ resource advisory councils FS-No	BLM-Yes (allow for grazing assoc.) FS-Yes (allow for grazing assoc.)	BLM-Replace w/ resource advisory councils FS-Replace w/ resource advisory councils	N.A.

ELEMENTS	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRON- MENTAL ENHANCEMENT	NO GRAZING
SUITABILITY	<b>BLM</b> -Some thresholds exist  <b>FS</b> -Sets suitability criteria	<b>BLM</b> -Some thresholds exist  <b>FS</b> -Sets suitability criteria	<b>BLM</b> -Some thresholds exist  <b>FS</b> -Sets suitability criteria	<b>BLM</b> -Sensitive areas non-suitable  <b>FS</b> -Sensitive areas non-suitable	<b>N.A.</b>
SERVICE CHARGE/ TRANSACTION FEE	<b>BLM</b> -Charges to cover processing <b>FS</b> -Fee for split billing	<b>BLM</b> -Charges to cover processing, including conservation use <b>FS</b> -Charges to cover processing	<b>BLM</b> -None  <b>FS</b> -None	<b>BLM</b> -Charges to cover processing <b>FS</b> -Charges to cover processing	<b>BLM</b> -Charges to cover trailing permits <b>FS</b> -Charges to cover trailing permits
RANGELAND ECOSYSTEMS	<b>BLM</b> -No regs.  <b>FS</b> -No regs.	<b>BLM</b> -Regs; policy implemented thru Nat'l requirements and regional stds and guidelines <b>FS</b> -In regs.	<b>BLM</b> -Consult with Grazing Advisory Boards  <b>FS</b> -Consult with Grazing Advisory Boards	<b>BLM</b> -All uses managed to sustain ecosystems  <b>FS</b> -All uses managed to sustain ecosystems	<b>BLM</b> -No regs.  <b>FS</b> -No regs.



## FEE ALTERNATIVES

Seven fee alternatives are considered in detail in Chapter 2:

- (1) Current PRIA (No Action)
- (2) Modified PRIA
- (3) BLM-Forest Service Proposal (Proposed Action)
- (4) Regional Fees
- (5) Federal Forage Fee
- (6) PRIA with Surcharges
- (7) Competitive Bidding

Thirty-five alternatives could be developed by combining the five management alternatives with the seven fee formulas. For purposes of clarity, the five management alternatives and seven alternative fee formulas are presented separately in this chapter. But, in Chapter 4, Environmental Consequences, each management alternative is combined with each of the seven fees and the cumulative impacts are analyzed (See Analysis of Economic Impacts in Chapter 4 and the Appendixes).

The fee alternatives would apply to all of the Forests Service's western national forests, all national grasslands, and all BLM lands. Historically, the national grasslands had a fee system different from that of the national forests and BLM-administered lands. But under all alternatives except No Action, BLM and the Forest Service in the western states would have identical fees. Fees on National Forest System Lands in the eastern states are not part of any fee alternative. Fees in these areas are currently based on fair market value or competitive bidding.

The fee alternatives could be implemented using one or more of a variety of phase-in options, limits on annual fee changes, and incentives to mitigate economic and other impacts.

For example, the agencies could phase in the competitive bid system by putting up grazing permits for competitive bid as they expire or over some fixed period. The proposed fee alternative would be phased in over a 3-year period. Fee incentive criteria would be developed during the first 2 years of the 3 year fee phase in period. The third year of the phase in would not be implemented until the incentive criteria are developed.

Under all of the grazing fee alternatives except Competitive Bidding, a tiered-fee arrangement could be implemented to provide financial relief to small operators (for example, setting different fee levels for small operators and large operators).

A variety of financial incentives could also be implemented under any of the fee alternatives, except possibly for the Competitive

Bidding alternative. Options for an incentive system could be to offer financial credits toward the fee for permittees (1) who participate in monitoring and conducting ecological site inventories of vegetation, (2) whose management has resulted in meeting vegetation objectives for the allotment, (3) who implement management prescriptions for improving the condition of the vegetation on their allotments, or (4) whose management improves vegetation. All of these credits would be authorized for management designed to improve ecosystems. The exact percentage of reduction at each level would be determined by the Secretary of Agriculture and the Secretary of the Interior.

Annual increases or decreases in the grazing fee could be limited to not more than plus or minus a specific percent of the previous year's fee. Such limits would eliminate large annual changes in fees that could cause difficult financial adjustments for permittees. Limits on annual fee changes are already built into the No Action and Proposed Action alternatives.

**FEE ALTERNATIVE 1: CURRENT PRIA (NO ACTION)**

The Current PRIA (No Action) alternative follows the current Executive Order formula (Executive Order 12548, February 14, 1986), which is the Public Rangelands Improvement Act (PRIA) formula with a minimum of \$1.35 per animal unit month (AUM). PRIA defined the results of this formula as fair market value.

The current fee system consists of a base value of \$1.23 per AUM that is then updated annually using three indexes. The base value of \$1.23 was developed from a 1966 study of costs of grazing on public and private leased lands. The study compared the total cost of grazing private leased land, including charges by the landlord, with total cost of grazing on public lands, excluding the federal grazing fee. The difference between this comparison is the amount to be charged, \$1.23, that makes total costs equal. The indexes measure the percent change in forage value (FVI), percent change in beef cattle prices (BCPI), and percent changes in the prices paid for selected items purchased by permittees (PPI). The indexes are assumed to measure the annual change in the market value of grazing and thereby keep the grazing fee current.

$$\text{Calculated Fee (CF)} = \text{BV} \times \frac{(\text{FVI} + \text{BCPI} - \text{PPI})}{100}$$

Where:

CF=The Calculated Fee to be charged. Annual increase or decreases in the fee are limited to 25 percent of the previous year's fee with a minimum fee of \$1.35.

BV=The base value is \$1.23, established in 1966 through the Western Livestock Grazing Survey.

FVI=The Forage Value Index, an index of annually surveyed private grazing land lease rates for 11 western states (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming); 1964-1968 = 100.

BCPI=The Beef Cattle Price Index, an index of U.S. Department of Agriculture annually reported prices of beef cattle weighing more than 500 pounds; 1964-1968 = 100.

PPI=The Prices Paid Index, indexed prices that producers of livestock pay for selected production items; 1964-1968 = 100.

The PRIA formula in 1991 resulted in a fee of \$1.97 per AUM and in 1993 a grazing fee of \$1.86 per AUM<sup>1</sup>.

As applied:  $\$1.86 = \$1.23 \times \frac{(275 + (316 - 440))}{100}$

Under current regulations, annual increases or decreases in the grazing fee are limited to not more than plus or minus 25 percent of the previous year's fee.

Appendix B, Technical Description of Fee Alternatives, contains a detailed description of the PRIA formula and alternative indexes.

#### FEE ALTERNATIVE 2: MODIFIED PRIA

Alternative 2 would use the same base of \$1.23 as Current PRIA, but would differ from Current PRIA in using an Input Cost Index (ICI) for all production costs (farm and nonfarm) rather than the selected production costs of the Price Paid Index (PPI). Also, the ICI would be divided into the BCPI rather than being subtracted from the BCPI.

Fee =  $BV \times \frac{(FVI \times (BCPI/ICI))}{100}$

Applied as:  $\$3.69 = \$1.23 \times [((275 \times (316/290)) / 100]$

BV, FVI and BCPI = Same as Alternative 1.

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<sup>1</sup>The social and economic impact analysis in Chapter 4 - Environmental Consequences uses 1991 economic data as the basis for analysis. Therefore, the grazing fees identified for comparison under each alternative are what the fee was or would have been in both 1991 and 1993, using the formula proposed under that alternative.

ICI=Input Cost Index (derived from National Prices Paid Index), weighted to reflect all production costs (both farm and nonfarm) for typical cow-calf operations in the western region; 1964-1968 = 100.

For comparison purposes, applying this formula would have resulted in a fee of \$3.52 per AUM in 1991 and \$3.69 per AUM in 1993.

For a more detailed discussion of this alternative, see Appendix B, Technical Description of Fee Alternatives.

### FEE ALTERNATIVE 3: BLM-FOREST SERVICE PROPOSED ACTION

Alternative 3 would adopt a fee system using a 1991 base value (\$3.96), updated annually by a Forage Value Index. The \$3.96 base value represents a midpoint in the range of two base values, \$3.25, derived from the 1966 Western Livestock Grazing Survey, and \$4.68, derived from the 1983 federal Land Forage appraisal (updated in 1992). Appendix C, Rationale for the Proposed Grazing Fee Formula, presents a discussion of this alternative.

The 1966 Western Livestock Grazing Survey (WLGS) established a base value of \$1.23 per AUM as the westwide value for public land forage. The WLGS surveyed 10,000 people to determine the nonfee costs of operating on federal lands as compared to operating on private land leases, and the difference of \$1.23 became the base value. Updating the \$1.23 value to 1993 by the change in the private land lease rate results in a westwide value of \$3.25 per AUM. This value accounts for the nonfee cost differences between leasing private and public land.

The base value of \$4.68 is derived from the 1983 federal Land Forage Appraisal of the value of grazing on lands managed by the Forest Service and BLM in 16 western states (Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming). Dividing the 16 states into six pricing regions, the appraisal concluded that the value of public land grazing varied from \$4.68 per AUM in the lowest value region (Southwest) to \$8.55 per AUM in the highest value region (Northern Plains).

The 1992 update, based on more data for private grazing lease rates gathered during 1991, found no change in the value of grazing in the lowest value region. The 1991 appraised value of public land grazing varied from \$4.68 per AUM in the Southwest to \$10.26 per AUM month in the Northern Plains.



Appendix B, Technical Description of Fee Alternatives, contains a detailed description of the 1983 appraisal and the 1992 update.

Alternative 3 differs from Alternatives 1 and 2 in having a different base value and in having a Forage Value Index (FVI) for 17 western states rather than 11 western states.

Fee = BV x FVI;

BV=Base Value of \$3.96

FVI=Forage Value Index is the weighted average of the prior year's PGLLR per AUM for pasturing cattle on private rangelands in each of the 17 contiguous western states (Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming), divided by the weighted average of the PGLLR per AUM for pasturing cattle in the year 1996 in each of the 17 contiguous western states. The weighted averages are calculated by multiplying the PGLLR for each of the 17 states by the number of public AUMs sold on public rangelands, National Forests and National Grasslands in each of the states during the respective years and dividing the total number of public AUMs sold in the 17 western states in the respective years. See Appendix D, Private Grazing Land Lease Rates.

A base value of \$3.96 per animal unit month (AUM) is proposed in this alternative. This value represents a midrange between the results obtained through the use of two methods for estimating a fair base value. Explanation of the methodology used in arriving at the \$3.96 base value is presented in Appendix C. The proposed fee would be phased in over the years 1995 through 1997. Thereafter, annual increases or decreases in the grazing fee resulting from changes in the forage value index would be limited to 25 percent of the amount charged the previous year to provide for a measure of stability that would facilitate business planning. An economic analysis of the impacts of the fee increase will be conducted during the phase-in period. Decisions on full implementation of the fee increase will be re-evaluated based on that economic analysis.

In preparation for the development of an incentive-based fee, a provision has been included in the Proposed Action that would substitute a base value of \$3.50, beginning in the year 1997, in the event that the Department has not completed a separate rulemaking establishing criteria and procedures for the implementation of an incentive fee formula. The incentive would be a 30 percent discount from the fee calculated using the proposed \$3.96 base value.



This proposal would establish 1996 as the base year for the forage value index. The forage value index would not be used to annually adjust the fee in response to market conditions until the year 1997. This proposed rule would establish the 1995 grazing fee at \$2.75, and the 1996 grazing fee at \$3.50. Thereafter the fee would be calculated, using the base value of \$3.96 multiplied by the revised forage value index. By definition, the forage value index in the year 1997 would equal one; yielding a 1997 grazing fee of \$3.96. In subsequent years the calculated fee would depend on the changes in the market rate for private grazing land leases as reflected by the forage value index.

This change in the derivation of the forage value index is proposed to reduce the uncertainty in the fee in the immediate future that resulted from using a forage value index based on less current private land lease rate data. Under the proposal presented in the advance notice of proposed rulemaking, the fee would have been adjusted annually by a forage value index based on the average price paid for private grazing in the years 1990 through 1992. Assuming that forage value index would have remained constant until the end of the phase in period provided in the advance notice, the formula would have yielded a grazing fee of \$4.28 per AUM as compared to a 1997 fee of \$3.96 per AUM using the revised forage value index.

#### **FEE ALTERNATIVE 4: REGIONAL FEES**

This fee formula that would be applied by Alternative 4 is the same as for the Proposed Action (Alternative 3), except that a different base value (base year 1991) would be applied to each of six pricing regions, and each base value would be updated annually by the westwide Forage Value Index. All BLM and Forest Service permittees within a region would pay the same fee. Map 2-1 shows westwide pricing areas, the basis for this alternative.

The regional base values would be derived from the 1983 federal land forage appraisal (updated in 1992) of the value of grazing on lands managed by the Forest Service and BLM in 16 western states (Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming). Dividing the 16 states into six pricing regions, the appraisal concluded that the value of public land grazing varied from \$4.68 per AUM in the lowest value region (the Southwest) to \$8.55 per AUM in the highest value region (the Northern Plains).

The 1992 update, based on more data for private grazing lease rates gathered during 1991, found no change in the value of grazing in the lowest value region. The 1991 appraised value of

public land grazing varied from \$4.68 per AUM in the Southwest to \$10.26 per AUM in the Northern Plains.

Appendix B, Technical Description of Fee Alternatives, contains a detailed description of the 1983 appraisal and the 1992 update.

$$\text{Fee}_{\text{Region } i} = \text{BV}_{\text{Region } i} \times \text{FVI}$$

$i = 1$  through 6

BV in Region 1 = \$10.26; Region 2 = \$6.39; Region 3 = \$7.74; Region 4 = \$6.39; Region 5 = \$4.68; Region 6 = \$6.85. (See Figure 2-2 for a map of these regions.)

For comparison purposes, applying the formula would have resulted in the following fees:

Region	1991 Projected Fee	1993 Projected Fee
1	\$10.26	\$11.08
2	6.39	6.90
3	7.74	8.36
4	6.39	6.90
5	4.68	5.05
6	6.85	7.40

#### FEE ALTERNATIVE 5: FEDERAL FORAGE FEE

Alternative 5, called the Federal Forage Fee formula by the group suggesting this system (The Western Livestock Producers Alliance), is based on the 3-year average of the weighted average of private grazing land lease rates for the 16 western states (WALLPR). The WALLPR is multiplied by the ratio of the 1966 Western Livestock Grazing Survey (WLGS) private land lease rate to the 1964-1968 base year private land lease rate (PrLFVR). Then the updated 1966 nonfee cost differential (NFCD) is deducted. Finally that residual is multiplied by the percentage that cash receipts per cow for federal permittees is of the cash receipts per cow for nonfederal livestock producers (NPD). The fee would be calculated each year using a 3-year rolling average of the private land lease rate.

$$\text{Grazing fee} = ((\text{WAPLLR} \times \text{PrLFVR}) - \text{NFCD}) \times \text{NPD}$$

$$\text{Applied as: } \$2.32 = ((8.67 \times .488) - 1.59) \times .879$$

This alternative assumes the difference between the National Agricultural Statistics Service's private grazing land lease rate and the private land lease rate determined in the 1966 Western Livestock Grazing Survey results from infrastructure and service differences. It assumes that subtracting the nonfee cost

differential from the private grazing land lease rate is as valid in 1993 as it was in 1966. The alternative further makes a third downward adjustment for productivity, defined as the difference in the cash receipts of permittees and nonpermittees.

For purposes of comparison, applying this formula would have resulted in a fee animal unit of \$2.36 in 1993. For each year the fee would not differ by more than 25 percent of the fee charged in the previous year.

Note: Exact data used by the developers of this alternative is not available and therefore the application of the formula as shown results in a value of \$2.32 rather than \$2.36 the developers used. The value of \$2.36 is used for all evaluations of this alternative.

Appendix E, Description of Grazing Fee Alternatives Submitted by Western Livestock Producers Alliance and High Country Citizens Alliance, contains the complete text for this alternative.

#### **FEE ALTERNATIVE 6: PRIA WITH SURCHARGES**

Alternative 6 would use the fee produced by the Public Rangelands Improvement Act (PRIA) formula as a base value and add a surcharge to cover the cost of administering the grazing program at the local Forest Service and BLM administrative level. The fee would be limited each year to twice the fee produced by the PRIA formula. After a 1 year phase-in, the surcharge would be limited to a 10 percent increase or decrease from the previous year's surcharge. The PRIA fee is discussed in detail in Alternative 2.

Fee = PRIA fee + Administrative Cost Surcharge

One of the main objectives of this alternative is to raise funds to cover the local cost of administration. The fee would vary from area to area depending on the cost of administering the grazing program, but it would not vary on the basis of the forage's value.

For comparison purposes, applying this formula and assuming the administrative cost surcharge would result in a fee between \$1.97 to \$3.94 per animal unit month in 1991 and between \$1.86 to \$3.72 in 1993. For evaluation purposes the 1993 maximum fee of \$3.72 is used.

Appendix E, Description of Grazing Fee Alternatives Submitted by Western Livestock Producers Alliance and High Country Citizens Alliance, contains the complete text for this alternative.

FEE ALTERNATIVE 7: COMPETITIVE BIDDING

Under Alternative 7, competitive bidding would be used to set grazing fees for livestock grazing. Under the terms of the permit, the successful bidder would be required to perform specific management practices and facilities maintenance. The terms of the permit would be part of the bid process, allowing bidders to estimate the market value of the forage to themselves with the permit requirements.

A competitive bidding system could be implemented through several options. One option would be to limit competitive bidding to vacant allotments and allotments acquired through land exchanges. Other options include competitive bidding for long- and short-term permits. For example, long-term competitive bidding could be used to establish grazing fees for 10-year term permits for established allotments. The successful bidders' fees over the life of the contract lease might be adjusted through use of the Forage Value Index or other adjustments, such as an index that reflects the price of hay or other livestock feed substitutes.

Short-term competitive bidding would generally follow the same procedures as long-term competitive bidding except that permits would be issued for 2- to 5-year terms, and the bid price would not be adjusted for market changes during the permit period.

These options would be phased in over time, beginning with vacant and new allotments. As existing 10-year-term permits expire, new fees could be established through competitive bidding. Permittees on record could match the highest bid.

For evaluation purposes a fully implemented competitive bidding system is estimated using the appraised values for the pricing regions as described in Alternative 4.

To implement competitive bidding, legislation may be needed for permittees who are not the highest bidders and would lose their grazing preference established by the Taylor Grazing Act. But legislation may not be needed for permittees who voluntarily give up their grazing preferences or where no preference has been established, such as on allotments newly acquired through land exchanges.

See Table 2-7 for a comparison of the fee alternatives. Figures 2-1 and 2-2 compare the actual fees by alternative.

Table 2-7: DESCRIPTION OF FEE ALTERNATIVES

Elements	PRIA	Modified PRIA	BLM-FS Proposal	Regional Fees	Federal Forage Fee	PRIA with Surcharge	Competitive Bidding
BASE VALUE	\$1.23	\$1.23	\$3.96	\$4.68-\$10.26	3-yr. avg.	PRIA (\$1.23)	None
MINIMUM FEE	\$1.35	\$1.23	\$3.96	\$4.68-\$10.26	3-yr. avg.	PRIA (\$1.35)	Market driven
FACTORS AFFECTING FEE	BV FVI BCPI PPI	BV FVI BCPI ICI	BV FVI	Regional BV FVI	WAPLLR NFCD PrLFVR NPD	PRIA fee, Admin. Surcharge	Demand
MAXIMUM ANNUAL FEE VARIATION	25%	25%	25%	25%	25%	Fee: 2*PRIA Surcharge 10%	Would vary
1993 CALCULATED FEE	\$1.86	\$3.69	\$4.28	\$5.05-\$11.08	\$2.36	\$3.72	Would vary

BV=Base Value; FVI=Forage Value Index; BCPI=Beef Cattle Price Index; PPI=Prices Paid Index  
 ICI=Input Cost Index; WAPLLR=Weighted Average of Private Land Lease Rates  
 PrLFVR=Ratio of WLGS Private Land Lease Rate to 1964-68 Base Year Private Land Lease Rate  
 NFCD=Nonfee Cost Differential; NPD=Ratio of Federal Permittee Cash Receipts to Nonfederal  
 Producers Cash Receipts; PRIA=Public Rangelands Improvement Act



Figure 2-1

## Alternative Fees

2/10/94

1993 Levels

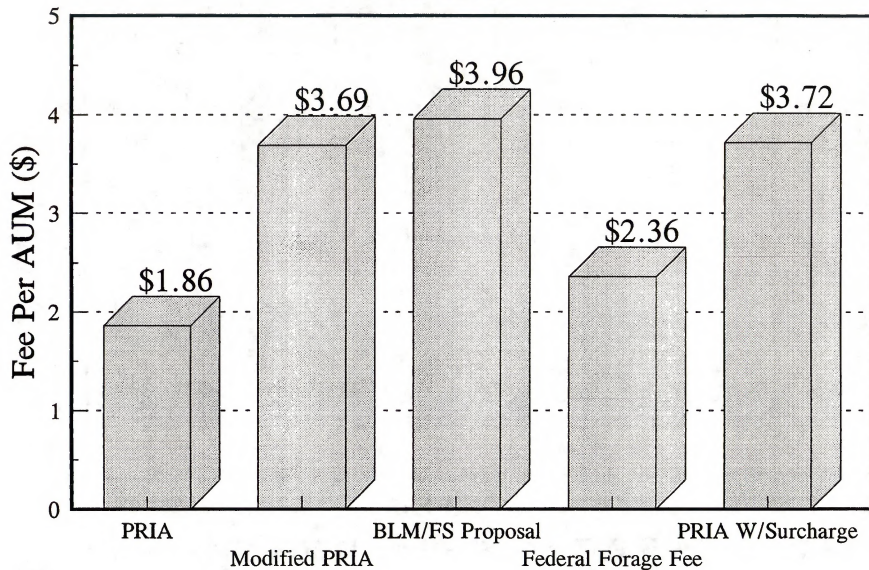


Figure 2-2

## Alternative Fees By Region

1993 Prices

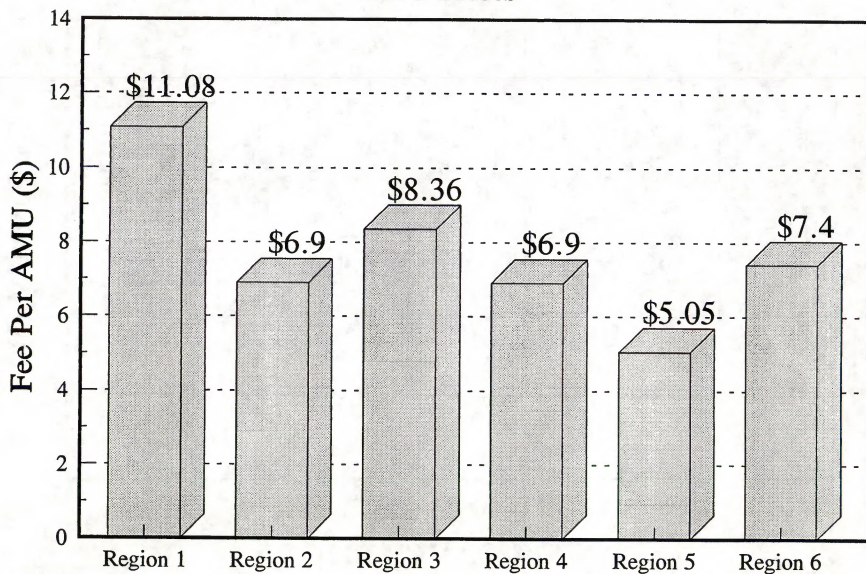
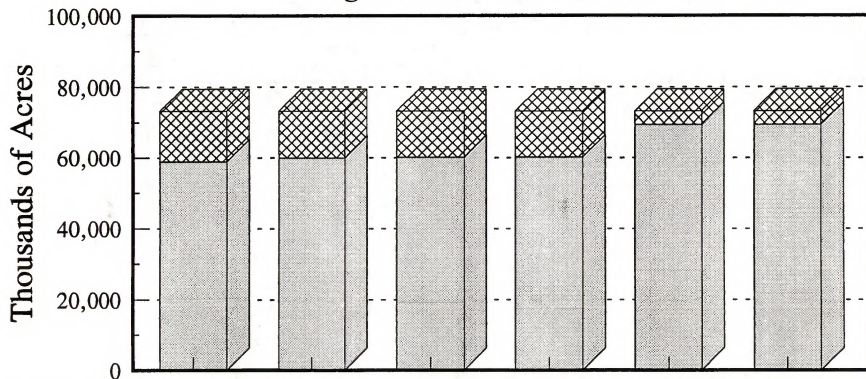


Figure 2-3

# Change in Status - Forest Service Uplands

## Comparison of Alternatives

### Long Term (20 Years)



	1993	Current Mgt	Livestock Prod.	Proposed Action	Environ. Enh.	No Grazing
Meeting/Moving To Objectives	58,868	59,949	60,141	60,174	69,373	69,373
Not Meeting Objectives	14,324	13,243	13,051	13,018	3,819	3,819
Total Acres	73,192	73,192	73,192	73,192	73,192	73,192

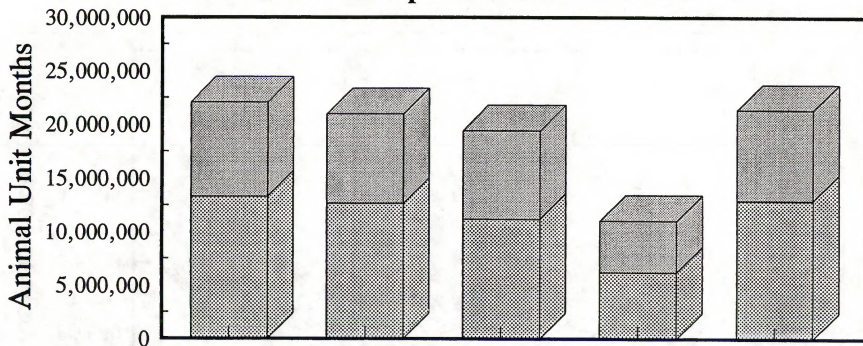
Figure 2-5

# Available Livestock Forage

In Animal Unit Months

2/25

Alternative Comparison - Short Term



	1993	Current Management	Proposed Action	Environ. Enh.	Livestock Prod.
BLM	13,303,068	12,673,580	11,198,593	6,208,196	12,924,519
Forest Service	8,765,829	8,323,936	8,238,280	4,839,668	8,438,705
Total	22,068,897	20,997,516	19,436,873	11,047,864	21,363,224

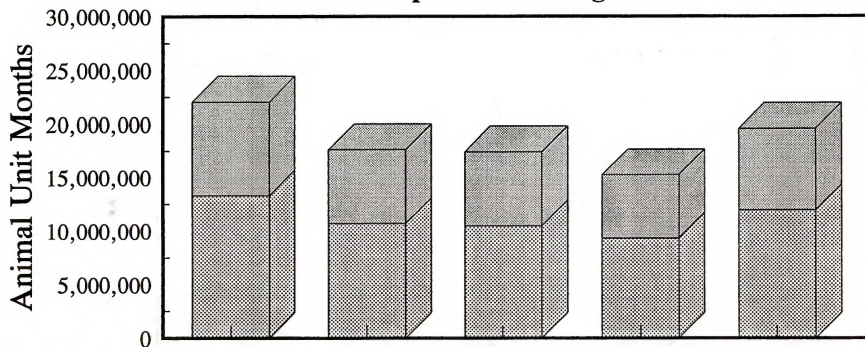
AUMs are estimated for both the Forest Service and BLM



Figure 2-6

# **Available Livestock Forage** **In Animal Unit Months** **Alternative Comparison - Long Term**

2/25



	1993	Current Management	Proposed Action	Environ. Enh.	Livestock Prod.
BLM	13,303,068	10,698,035	10,463,106	9,307,162	11,943,723
Forest Service	8,765,829	6,950,267	6,969,338	5,961,397	7,624,048
Total	22,068,897	17,648,302	17,432,444	15,268,559	19,567,771

AUMs are estimated for both the  
Forest Service and BLM

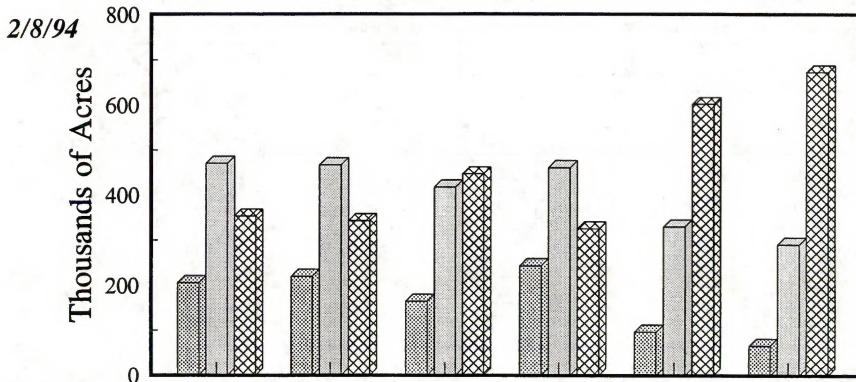


Figure 2-7

# Changes in Functioning Condition - BLM Riparian

Comparison of Alternatives

Long Term (20 Years)

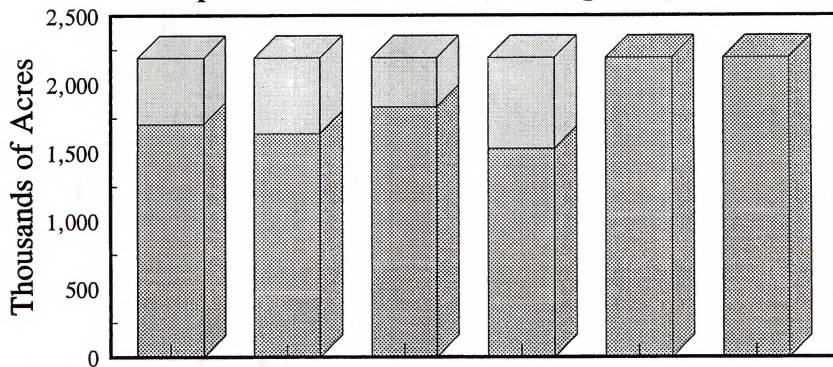


	1993 Estimated	Current Management	Proposed Action	Livestock Prod	Environ. Enh.	No Grazing
Nonfunctioning	205.0	219.1	164.0	242.7	96.3	65.6
Functioning at Risk	470.3	466.8	417.3	460.8	329.7	289.9
Proper Functioning	353.1	342.5	447.1	324.9	602.4	672.9
Total	1,028.4	1,028.4	1,028.4	1,028.4	1,028.4	1,028.4

Figure 2-8

# Change in Status - Riparian Forest Service

## Comparison of Alternatives - Long Term



	1993 Estimated	Current Management	Proposed Action	Livestock Prod.	Environ. Enh.	No Grazing
Mtg Objectives	1,707.0	1,639.5	1,831.7	1,527.9	2,191.3	2,191.3
Not Meeting	484.3	551.8	359.6	663.4	0.0	0.0
Total	2,191.3	2,191.3	2,191.3	2,191.3	2,191.3	2,191.3

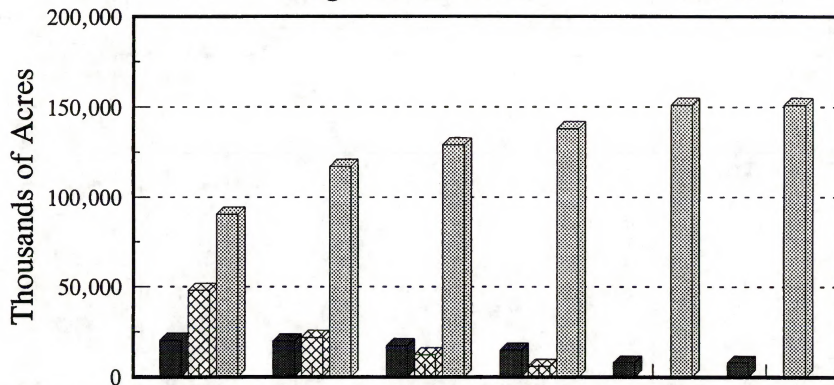
Figure 2-4

# Changes in Functioning Condition - BLM Uplands

Comparison of Alternatives

Long Term (20 Years)

2\25



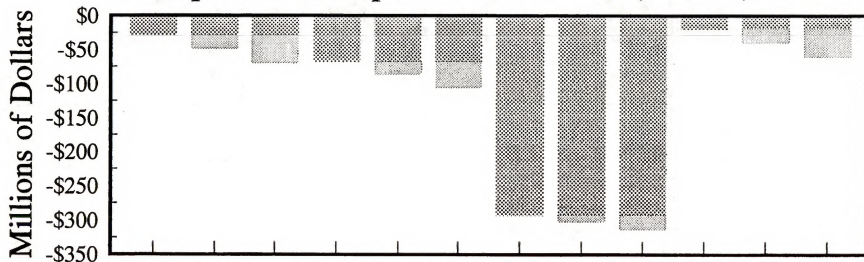
	1993 Estimate	Current Mangement	Livestock Prod.	Proposed Action	Environ. Enh.	No Grazing
Non-Functioning	20,500	20,000	17,500	15,000	8,000	8,000
Functioning at Risk	48,000	22,000	12,500	6,000	0	0
Functioning	90,500	117,000	129,000	138,000	151,000	151,000
Total Acres	159,000	159,000	159,000	159,000	159,000	159,000

Figure 2-9

# Reductions in Income

## Livestock Industry

### Comparison of Impacts - Short Term (5 Years)



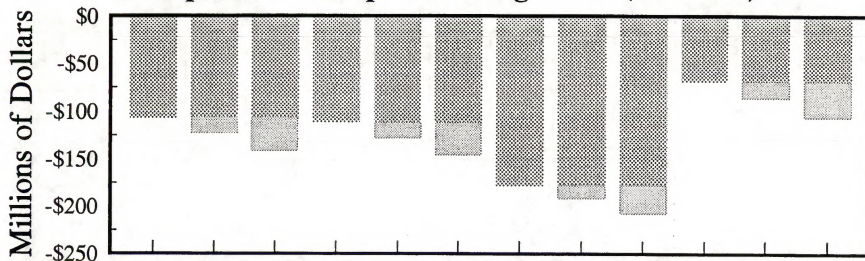
BLM and Forest Service Permittees Only

Figure 2-10

# Reductions in Income

## Livestock Industry

### Comparison of Impacts - Long Term (20 Years)



Alternative	CM FEIA	CM Proposed Fee	CM Regional Fee	PA FEIA	PA Proposed Fee	PA Regional Fee	BS FEIA	BS Proposed Fee	BS Regional Fee	LP FEIA	LP Proposed Fee	LP Regional Fee
Management Action	-107	-107	-107	-111	-111	-111	-177	-177	-177	-69	-69	-69
Fee	0	-16	-35	0	-16	-34	0	-14	-30	0	-18	-38
Total	-107	-123	-141	-111	-128	-146	-177	-191	-207	-69	-86	-107

BLM and Forest Service Permittees Only



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INSERT FIGURES 2-3 THRU 2-10 HERE

**ALTERNATIVES CONSIDERED BUT NOT PRESENTED IN DETAIL**

Several alternatives were evaluated but eliminated from detailed consideration for reasons discussed below.

**MANAGEMENT ALTERNATIVES**

**MAXIMUM PRODUCTION**

The Maximum Production alternative would be more favorable to the livestock industry than would Current Management. Under this alternative, both agencies would work to increase the economic return of the industry and establish livestock grazing as the dominant use on federal lands.

Functioning independently of other sectors of the public, grazing advisory boards would be retained to manage the allocation of all Range Betterment Funds and direct and set priorities for BLM and Forest Service rangeland management. Range Betterment Funds would be used only for livestock-related purposes. Vegetation would be managed for the greatest livestock weight gain and health. If necessary, riparian and upland areas would be open to livestock grazing all year. Areas now under different management would also be opened if permittees so desired. Grazing fees would be set artificially low to maximize profits, and public rangelands could be subleased for the same reason.

The goal of Maximum Production is to allow the most red meat production and greatest economic benefit to ranchers and livestock owners.

Maximum Production is not considered in detail because it does not meet the purpose and need, and many of its components are in other alternatives that are considered in detail. This would make the analysis of this alternative unnecessary, redundant and repetitive.

The following issues related to Maximum Production are addressed and analyzed in one or more of the alternatives considered in detail:

\* Standards and guidelines (the lack of) are addressed in Alternative 1 (Current Management).

\* Permit Tenure is addressed in Alternative 3 (Livestock Production). Alternative 3 considers an extension to a 20-year term with good stewardship.

\* Suitability is addressed in Alternative 1, (Current Management).

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\* water rights are addressed in Alternatives 3 (Livestock Production).

\* Foreign Corporations are addressed in Alternative 2 (Proposed Action).

\* Range Betterment Fund distribution and use are addressed and analyzed in detail in Alternative 4 (Environmental Enhancement).

\* Service Charge/Transaction Fee would be the same as under Alternative 3 (Livestock Production).

### FEE ALTERNATIVES

#### **PRIVATE LAND LEASE RATE**

Public land grazing fees equal to the previous year's private grazing land lease rate have not been analyzed in detail. The private grazing land lease rate is an indicator of value and of changes in market value that is used often in this analysis. The private grazing land lease rate does not directly reflect the value of public forage because of the differences in the costs of using public lands for grazing.

#### **OWYHEE CATTLEMEN'S ASSOCIATION/OWYHEE COUNTY PROPOSAL**

This alternative would set the federal grazing fee at 19.1 percent of the annual 11-state average private grazing land lease rate (PGLLR). The 19.1 percent is determined by dividing the federal grazing fee (set by the Public Rangelands Improvement Act) by the PGLLR over the past 15 years. The 15-year average federal grazing fee is 19.1 percent of the 11-state average PGLLR. Because elements of this alternative--the current PRIA grazing fee formula and tying the grazing fee to the rate of change in the private grazing land lease rate--appear in alternatives analyzed in this EIS, this alternative has not been analyzed in detail.

#### **WEIGHTED-AVERAGE APPRAISAL VALUE MULTIPLIED BY THE FORAGE VALUE INDEX (1991 BASE VALUE = \$6.38)**

This alternative, which sets the base value as the average of the appraisal values established for the six pricing regions in the 1992 appraisal update (weighted by the amount of public grazing), has not been analyzed in detail. The base value of \$6.38 exceeds the appraised value of \$4.68 in the lowest value region (the Southwest), location of about 33 percent of the total livestock forage on BLM- and Forest Service-administered lands. Consequently, this alternative is not considered feasible.

IMPLEMENTATION

The decisions resulting from the analysis in this EIS may be implemented in a variety of ways: new or amended legislation, executive order, rulemaking, agency directives, interagency agreements, land use planning, and regional or site-specific analyses. The choice of implementation methods will depend on the nature of the alternative selected and other considerations such as cost, timeliness, and effectiveness.

Both the Forest Service and BLM intend to jointly recognize identical ecoregions to facilitate ecosystem management. A modification of R.G. Bailey's Ecoregions of the United States (Bailey 1980), these ecoregions will serve as the basis for the developing BLM regional standards and guidelines.

In the interim, before the formal recognition of these ecoregions, the two agencies will need to consider existing administrative boundaries. At the least, BLM will develop regional standards and guidelines within each state in cooperation with the Forest Service. BLM standards and guidelines will be developed in consultation with resource advisory councils and other federal and state land management and regulatory agencies.

To meet national requirements, BLM will develop state or regional standards and guidelines and complete a plan conformance test within 18 months, subject to NEPA and BLM planning regulations. All standards and guidelines that conform to existing land use plans will be implemented immediately. For standards and guidelines that do not conform to existing land use plans, BLM will begin a plan amendment process with National Environmental Policy Act (NEPA) analysis. Any additional NEPA compliance will tier to the analysis of the national requirements and standards and guidelines presented in this EIS. Any additional NEPA work would be at the appropriate level (i.e. none, categorical exclusion, environmental assessment, or environmental impact statement, adopting other NEPA work, etc.), depending on plan conformance determinations and previous NEPA work.

If at the end of 18 months regional standards and guidelines have not been developed, the fallback standards and guidelines will be implemented immediately subject to the plan conformance test and NEPA compliance described for the regional standards and guidelines. The Forest Service establishes or amends standards and guidelines for rangeland management in forest plans for individual forests.

Annual grazing authorizations and renewal of permits and leases would be contingent upon adherence to terms. Failure to comply

could result in authorized livestock grazing being reduced or the permit being canceled.

Implementation actions would be evaluated to determine their potential effect on federally listed threatened and endangered species, species proposed for listing, or designated or proposed threatened or endangered critical habitats. Before implementing actions that might affect listed or proposed species, the agencies will consult with the Fish and Wildlife Service or the National Marine Fisheries Service as required by Section 7 of the Endangered Species Act. When feasible, BLM and the Forest Service will conduct this consultation using an ecosystem or species rangewide approach.

Table 2-8 shows policy and regulation changes for the actions proposed by each alternative except Current Management.



1

Table 2-8

2 Table 2-8: IMPLEMENTATION REQUIREMENTS FOR THE MANAGEMENT  
3 ALTERNATIVES (OTHER THAN CURRENT MANAGEMENT)

CHANGE AGENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
STANDARDS AND GUIDELINES	BLM-Regulation Change FS-Policy Change	BLM-Policy Change FS-No Change	BLM-Policy Change FS-Policy Change	BLM-No Change FS-No Change
LEASING	BLM-Regulation Change FS-No Change	BLM-Regulation Change FS-Regulation Change	BLM-Regulation Change FS-No Change	BLM-Regulation Change FS-No Change
FOREIGN CORPORATIONS	BLM-No Change FS-Regulation Change	BLM-Legislation FS-Legislation	BLM-No Change FS-Regulation Change	BLM-Regulation Change FS-Regulation Change
DISQUALIFICATION	BLM-Regulation Change FS-Regulation Change	BLM-Regulation Change FS-Regulation Change	BLM-Regulation Change FS-Regulation Change	BLM-Regulation Change FS-Regulation Change
PROHIBITED ACTS	BLM-Regulation Change FS-No Change	BLM-No Change FS-No Change	BLM-Regulation Change FS-No Change	BLM-Regulation Change FS-No Change
GRANT POLICY	BLM-Regulation Change FS-Policy Change	BLM-Regulation Change FS-Policy Change	BLM-Regulation Change FS-Policy Change	BLM-Regulation Change FS-Policy Change

CHANGE AGENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRON-MENTAL ENHANCEMENT	NO GRAZING
PERMIT TENURE	BLM-No Change FS-No Change	BLM-Change in FLPMA FS-Change in NFMA	BLM-No Change FS-No Change	BLM-Regulation Change FS-Regulation Change
UNAUTHORIZED USE	BLM-Regulation Change FS-Regulation Change	BLM-Regulation Change FS-Regulation Change	BLM-Regulation Change FS-Regulation Change	BLM-No Change FS-No Change
NONUSE	BLM-Regulation Change FS-No Change	BLM-Regulation Change FS-Regulation Change	BLM-Regulation Change FS-Regulation Change	BLM-Regulation Change FS-Regulation Change
SUSPENDED NONUSE	BLM- No Change FS-N.A.	BLM-No Change FS-N.A.	BLM-Regulation Change FS-N.A.	BLM-Regulation Change FS-N.A.
Water RIGHTS	BLM-Policy Change FS-No Change	BLM-No Change FS-Policy Change	BLM-Policy Change FS-No Change	BLM-Policy Change FS-No Change
RANGE IMPROVEMENT OWNERSHIP	BLM-Regulation Change FS-No Change	BLM-No Change FS-Policy Change	BLM-Policy Change FS-No Change	BLM-Policy Change FS-No Change
RANGE BETTERMENT FUND DISTRIBUTION	BLM-Policy Change FS-No Change	BLM-Policy Change FS-Policy Change	BLM-Regulation Change FS-No Change	BLM-Policy Change FS-Policy Change
RANGE BETTERMENT FUND USE	BLM-Regulation Change FS-Policy Change	BLM-No Change FS-No Change	BLM-Regulation Change FS-Policy Change	BLM-Regulation Change FS-Regulation Change
EXPEDITED APPEALS	BLM-Regulation Change FS-No Change	BLM-No Change FS-No Change	BLM-Regulation Change FS-No Change	BLM-No Change FS-No Change

CHANGE AGENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRON- MENTAL ENHANCEMENT	NO GRAZING
GRAZING ADVISORY BOARDS	BLM- Regulation Change FS- Regulation Change	BLM- Regulation Change FS- Legislation	BLM- Regulation Change FS- Regulation Change	BLM- Regulation Change FS- Regulation Change
SWITABILITY	BLM-No Change FS-No Change	BLM-No Change FS-No Change	BLM- Legislation FS- Legislation	BLM- Legislation FS- Legislation
SERVICE CHARGE/ TRANSACTION FEE	BLM- Regulation Change FS- Regulation Change	BLM- Regulation Change FS-Policy Change	BLM-No Change FS- Regulation Change	BLM- Regulation Change FS- Regulation Change
RANGELAND ECOSYSTEMS	BLM- Regulation Change FS- Regulation Change	BLM-Policy Change FS-Policy Change	BLM-Policy and Regulation Change FS-Policy and Regulation Change	BLM-Policy Change FS-Policy Change

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**COMPARISON OF IMPACTS**

Table 2-9 and Figures 2-3 through 2-8 compare the impacts of the Proposed Action and alternatives. Although these impacts are described in detail in Chapter 4, Environmental Consequences, the table and figures are provided to assist decisionmakers and reviewers by concisely summarizing the major impacts and presenting them in comparative form.

Table 2-9: SUMMARY OF IMPACTS

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
CLIMATE	Climate will not be affected by any alternative.				
AIR QUALITY	Air quality would not be significantly affected under any alternative. Locally, all alternatives would affect air quality because of vegetation treatments applied as part of rangeland management, including prescribed burning, mechanical treatments, and chemical applications. Such impacts would tend to be temporary, small in scale, and widely dispersed.				



ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
1 2 3 4 VEGETATION AND WATERSHED CONDITIONS	On BLM lands, the amount of inventoried upland vegetation in late seral and potential natural communities would increase by 11 percent (from 31.8 to 35.3 million acres) over the long term. The upward trend on BLM upland vegetation would increase by 10 percent (from 28.4 to 31.3 million acres). On Forest Service lands, the amount of upland vegetation	On BLM lands, the amount of inventoried upland vegetation in late seral and potential natural communities would increase by 16 percent (to 36.9 million acres) over the long term. The upward trend on BLM upland vegetation would increase by 21 percent (to 34.3 million acres). On Forest Service-administered lands, upland vegetation meeting or moving toward forest plan objectives would increase by 2	On BLM lands, the amount of inventoried upland vegetation in late seral and potential natural communities would increase by 21 percent (to 37.8 million acres) over the long term. The upward trend on BLM upland vegetation would increase by 15 percent (to 32.8 million acres). Most of the improvement in upland vegetation condition would occur in areas receiving more than 12 inches of precipitation	On BLM lands, the amount of inventoried upland vegetation in late seral and potential natural communities would increase by 24 percent (to 39.4 million acres) over the long term. The upward trend on BLM upland vegetation would show a 25 percent increase (to 35.4 million acres). Most improvement in upland vegetation conditions would occur in areas receiving more than 12 inches of precipitation.	On BLM lands, the amount of inventoried upland vegetation in late seral and potential natural communities would increase by 27 percent (to 40.4 million acres) over the long term. The upward trend on BLM upland vegetation would show only an 8 percent increase (to 30.6 million acres), a result of removing grazing from ecosystems or vegetation zones that evolved under grazing pressure. But as both agencies more

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
1 <b>VEGETATION</b> 2 <b>AND</b> 3 <b>WATERSHED</b> 4 <b>CONDITIONS</b> 5 <b>(Continued)</b>	<p>In the long term, 33 percent of BLM riparian areas would be properly functioning, a decrease of 3 percent from 1993. Another 45 percent would be functioning but susceptible to degradation, a decrease of less than 1 percent from 1993. About 21 percent would be nonfunctioning, an increase of 7 percent from 1993.</p> <p>On Forest Service-administered lands (Figure 2-8), riparian</p>	<p>In the long term, 43 percent of BLM riparian areas would be properly functioning, an increase of 27 percent from 1993. Another 41 percent would become functioning but susceptible to degradation, a decrease of 11 percent from 1993. About 16 percent would be nonfunctioning, a decrease of 20 percent from 1993.</p> <p>On Forest Service-administered lands, riparian areas that meet or are moving toward</p>	<p>In the long term, 32 percent of BLM riparian areas would be properly functioning, a decrease of 8 percent from 1993. Another 45 percent would become functioning but susceptible to degradation, a decrease of 2 percent from 1993. About 24 percent would be nonfunctioning, an increase of 18 percent from 1993).</p> <p>On Forest Service-administered lands, riparian areas that meet or are</p>	<p>In the long term, about 59 percent of BLM riparian areas would be properly functioning, an increase of 71 percent from 1993. Another 32 percent would become functioning but susceptible to degradation, a decrease of 30 percent from 1993. About 9 percent would be nonfunctioning, a decrease of 53 percent from 1993.</p> <p>On Forest Service-administered lands, riparian areas that meet or are moving toward</p>	<p>In the long term, 65 percent of BLM riparian areas would be properly functioning, an increase of 91 percent from 1993. Another 28 percent would become functioning but susceptible to degradation, a decrease of 38 percent from 1993. About 6 percent would be nonfunctioning, a decrease of 68 percent from 1993.</p> <p>On Forest Service-administered lands, riparian areas that meet or are moving toward</p>

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
1 <b>VEGETATION</b> 2 <b>AND</b> 3 <b>WATERSHED</b> 4 <b>CONDITIONS</b> 5 <b>(Continued)</b>	The level of forage authorized for livestock by both agencies would decline by 18 percent.	The level of forage authorized for livestock by both agencies would decline by 21 percent.	Although forage authorized for livestock by both agencies would decrease by 11 percent, overall riparian resource conditions would continue to decline.	Forage authorized by both agencies for livestock would decline by 31 percent.	Forage authorized for livestock by both agencies would decline by essentially 100 percent.

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
1 WILDLIFE	Upland-dependent wildlife would generally benefit from changes in upland plant communities. Fish and other wildlife associated with riparian areas would continue to decline as riparian habitat conditions continue to deteriorate. Locally, riparian habitat conditions would continue to improve in allotments where changes in livestock management can be or have	Both upland and riparian-dependent wildlife would benefit from projected improvements in vegetation and watershed conditions. Upland species that favor or rely upon late seral and potential natural communities would benefit more than species that favor earlier seral stages.	Upland-dependent wildlife would generally benefit from changes in upland plant communities. Upland species that favor or rely upon late seral and potential natural communities would benefit more than species that favor earlier seral stages.  Fish and other wildlife species associated with riparian areas would continue to decline as riparian habitat conditions continue to deteriorate.	Both upland and riparian-dependent wildlife would benefit from improvements in vegetation and watershed conditions. Upland species that favor or rely upon late seral and potential natural communities would benefit more than species that favor earlier seral stages. Most wildlife benefits would result from limiting livestock grazing to areas in proper functioning condition.	Both upland and riparian-dependent wildlife species would benefit from improvements in vegetation and watershed conditions. Upland species that favor or rely upon late seral and potential natural communities would benefit more than species that favor earlier seral stages.

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
SPECIAL STATUS SPECIES	In general, special status species associated with upland vegetation would benefit from improvements in upland conditions. Some species might be restored or recover although the status of individual species would continue to highly depend on many factors (such as the implementing of interagency recovery plans). Special status species that depend on riparian habitat would probably continue to decline, and new species might become threatened or endangered. But continued consultation with the Fish and Wildlife Service and more rigorous implementing of ecosystem management practices should minimize such declines	In general, special status species associated with both upland and riparian vegetation would benefit from improvements in conditions. Some species might be restored or recover, although the status of individual species would continue to highly depend on many factors (such as implementing interagency recovery plans).	Special Status Species favoring upland range conditions that are improved for livestock production would benefit. Others would continue to decline. Special status species that depend on riparian habitat would probably continue to decline, and new species might become threatened or endangered. But continued consultation with the Fish and Wildlife Service and more rigorous implementing of ecosystem management practices should help mitigate or reduce such declines.	In general, special status species associated with both upland and riparian vegetation would benefit from improved conditions. Some species might be restored or recovered, although the status of individual species would continue to be highly dependent on many factors (such as implementing interagency recovery plans). Some listed species would benefit from excluding livestock, particularly in riparian areas.	Generally, special status species associated with both upland and riparian vegetation would benefit from improved conditions. Some species might be restored or recover, although the status of individual species would continue to highly depend on many factors (such as implementing interagency recovery plans). Some listed species would benefit from excluding livestock, particularly in riparian areas.

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ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
1 2 GRAZING ADMINISTRATION	<p>Nonuse has been authorized annually for operator convenience or resource protection. In BLM, grazing decisions are automatically stayed from implementation until any appeals are resolved. Forest Service decisions related to grazing permit compliance are not automatically stayed upon appeal. Forest Service decisions made through the NEPA process are stayed for 45 days if appealed. Persons may appeal a decision merely to delay its implementation. Appeals create a significant administrative workload for both agencies. Since each state has its own BLM policy to determine public participation procedures, inconsistencies have reduced administrative efficiencies. BLM grazing advisory boards strongly influence decisions on spending and setting priorities for Range Betterment Funds, and their recommendations tend to favor improvements that directly benefit livestock interests. The Forest Service does not have grazing advisory boards. Subleasing, while now</p>	<p>The agencies would become more consistent in applying grazing policies and regulations. Inconsistencies would remain in regulations relating to leasing and advisory groups. BLM efficiency would improve with regulation changes related to base property leases, livestock pasturing agreements, unauthorized use, appeal of grazing decisions, range improvement ownership, disqualification, and implementation of ecosystem management by applying standards and guidelines. The Forest Service would gain improved efficiency and consistency related to unauthorized use, foreign corporation eligibility for holding grazing permits, disqualification, and implementing ecosystem rangeland management.</p> <p>Including livestock grazing, temporary nonuse, and conservation use as part of authorized use would trim the administrative workload since conservation use would be incorporated into the terms of BLM grazing permits. The implementation of expedited appeal procedures would allow most BLM decisions to take effect within 75</p>	<p>Changes in grazing regulations regarding standards and guidelines, nonuse, grazing advisory boards, and range improvement ownership would allow BLM and the Forest Service to more efficiently administer their rangeland programs.</p> <p>Changes in administrative processes for unauthorized use, use of Range Betterment Funds, and resource decisions would hinder efficiency in meeting resource management objectives. Grazing transfers on Forest Service-administered lands would significantly increase due to increased leasing of base property and livestock. BLM and Forest Service regulations would be more alike than at present, making it easier to consistently implement ecosystem management.</p> <p>The time and money spent by the agencies would be greatly reduced by transferring administrative roles to grazing associations formed by grazing advisory boards. These responsibilities would include resolving unauthorized use,</p>	<p>Under this alternative, BLM and Forest Service regulations would be consistent. This consistency, combined with common standards and guidelines, would help both agencies implement ecosystem management. BLM would no longer issue base property or livestock leases. Allowing the public to become involved in all aspects of grazing administration would greatly increase the amount of time the agencies would spend working with the public and permittees to facilitate consensus decisions. The decrease in stayed agency decisions would facilitate rapid implementing of forage adjustments, management revisions, and other administrative changes resulting from standards and guidelines. Permittee performance as acceptable land stewards would play a major role in determining the length of their grazing permit. Resource advisory councils would provide more balanced input into both agencies' decisionmaking process and they enhance the implementing of ecosystem management. Removing livestock</p>	<p>Without other livestock management responsibilities, BLM and the Forest Service could devote more resources to detecting and resolving unauthorized use. The two agencies would be required to pay grazing permittees for the current value of their private investments in projects they could no longer use.</p>

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
GRAZING ADMINISTRATION (Continued)	Range Betterment Funds are now distributed by BLM to their areas of origin. The Forest Service distributes half of Range Betterment Fund to the area of origin and gives the regional forester discretion to distribute the other half on the basis of regional priorities. Use of Range Betterment Funds is generally limited to design and building of improvements. In some areas, the Forest Service also uses these funds for planning and environmental analysis directly associated with building improvements. Both agencies are developing policies that promote ecosystem management.	The number of base property and livestock leases would decrease as the surcharge reduces profitability.			

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ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
WILD HORSES AND BURROS	Existing private control of water rights and range improvements on BLM administered herd management areas would hinder the meeting of wild horse and burro management objectives. The Forest Service currently controls livestock water rights and permanent range improvements on national forest lands. Livestock would continue to compete with wild horses and burros for water and forage. Improved upland vegetation trends would favor the forage base for wild horses and burros. The influence of BLM grazing advisory boards would focus on livestock production discouraging wild horse and burro considerations in local resource management. The Forest Service does not use grazing advisory boards.	BLM would file for water rights for new water developments for grazing related purposes on public land. The Forest Service currently files for all livestock water rights on National Forest land. Agency control of water rights would provide additional opportunity for management of available water for wild horses and burros, increasing dispersment and improving overall vegetation. BLM would own all new permanent range improvements on BLM land as the Forest Service currently does on National Forest land, which would focus range improvement more on development for mutual benefits including emphasis on wild horses and burros. Replacing BLM grazing advisory boards with BLM resource advisory councils would have a more balanced focus towards wild horse and burro management. The Forest Service would continue to involve interested publics through the NEPA process.	Improvement in upland vegetation condition would increase the amount and quality of wild horse and burro forage. Focusing on increasing livestock production, increased range improvements would mainly consist of vegetation treatments and water developments. These improvements in wild horse and burro management areas would improve conditions for wild horse and burros. But increased livestock management fences in wild horse management areas would inhibit the free roaming of wild horses and burros.	Improvement of upland and riparian vegetation zones would provide improved conditions for wild horses and burros where competition with livestock has been eliminated because of nonfunctioning and functioning but subject to degradation determinations. Range improvements and water developments would be managed with a broader diversity of values, improving conditions and opportunities for more intensive wild horse and burro management. Resource advisory councils would have more diverse interests, resulting in increased emphasis on wild horse and burro management.	Improved upland and riparian vegetation zones would improve range conditions of wild horses and burros where they compete with livestock. Range improvements blocking wild horse and burro movement would be removed. The loss of range improvements critical to wild horses and burros would harm these animals until budget and management processes were developed to provide these needs. Improvements would be built for wild horses and burros. Publicly owned water developments and fences would be built in herd management areas to protect riparian and other sensitive areas.
RECREATION AND SCENIC VALUES	Alternatives that would most improve riparian and wildlife habitat conditions would generally result in the greatest improvement in opportunities for recreation, particularly fishing, camping, picnicking, hunting, birdwatching, and related activities.				
WILDERNESS	Effects on wilderness values would generally correspond to projected effects on vegetation and watershed conditions and wildlife habitat. Alternatives that result in more naturally appearing and functioning ecosystems would result in landscapes that more closely meet the definition of wilderness. Wilderness-related recreation values would generally be affected in the same way as other recreation values.				

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
CULTURAL AND PALEONTOLOGICAL VALUES	Effects on cultural and paleontological values are generally related to grazing intensity and surface disturbance from building range improvements. Alternatives that would allow less livestock grazing of forage and fewer range improvements generally would less disturb cultural and paleontological resources.				

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ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
1 ECONOMIC CONDITIONS	<u>EMPLOYMENT LOSSES WESTWIDE:</u>	<u>EMPLOYMENT LOSSES WESTWIDE:</u>	<u>EMPLOYMENT LOSSES WESTWIDE:</u>	<u>EMPLOYMENT LOSSES WESTWIDE:</u>	<u>EMPLOYMENT LOSSES WESTWIDE:</u>
2	5 years: 710 - 1,820 jobs (0.1%)	5 years: 1,680 - 2,710 jobs (0.1% - 0.2%)	5 years: 470 - 1,610 jobs (up to 0.1%)	5 years: 7,240 - 7,820 jobs (0.5%)	18,300 jobs (1% of total agricultural employment; less than 0.1% of total westwide employment)
3	20 years: 2,640 - 3,580 jobs (0.2%)	20 years: 2,760 - 3,680 jobs (0.2%)	20 years: 1,700 - 2,730 jobs (up to 0.2%)	20 years: 4,390 - 5,200 jobs (0.3%)	
4	<u>TOTAL INCOME LOSSES WESTWIDE:</u>	<u>TOTAL INCOME LOSSES WESTWIDE:</u>	<u>TOTAL INCOME LOSSES WESTWIDE:</u>	<u>TOTAL INCOME LOSSES WESTWIDE:</u>	<u>TOTAL INCOME LOSSES WESTWIDE:</u>
	5 years: \$28.7 - \$69.9 million (0.1% - 0.2%)	5 years: \$69.9 - \$106.1 million (0.2% - 0.3%) (See Figure 2-9)	5 years: \$19.1 - \$61.1 million (up to 0.2%) (See Figure 2-9)	5 years: \$292.3 - \$314 million (1%) (See Figure 2-9)	\$737.1 million (2.4% of total agricultural employment; 0.5% of total westwide income)
	20 years: \$106.7 - \$141.5 million (0.3% - 0.4%)	20 years: \$111.5 - 145.7 million (0.3% - 0.4%) (See Figure 2-10)	20 years: \$68.5 - 106.7 million (up to 0.3%) (See Figure 2-10)	20 years: \$177.2 - \$207.1 million (0.6%) (See Figure 2-10)	<u>RANCH INCOME AND OPERATIONS:</u>
	<u>RANCH INCOME AND OPERATIONS:</u>	<u>RANCH INCOME AND OPERATIONS:</u>	<u>RANCH INCOME AND OPERATIONS:</u>	<u>RANCH INCOME AND OPERATIONS:</u>	<u>425-cow operation with 60% forage dependency:</u>
	<u>425-cow operation with 60% forage dependency:</u>	<u>425-cow operation with 60% forage dependency:</u>	<u>425-cow operation with 60% forage dependency:</u>	<u>425-cow operation with 60% forage dependency:</u>	265-cow loss and net cash returns loss of \$22,800
	5 years: 13-cow loss and net cash returns loss of \$1,100 (at current fee level) to \$14,300 (at average regional fee level)	5 years: 32-cow loss and net cash returns loss of \$2,700 (at current fee level) to \$14,900 (at average regional fee level)	5 years: 8-cow loss and net cash returns loss of \$700 (at current fee level) to \$14,100 (at average regional fee level)	5 years: 133-cow loss and net cash returns loss of \$11,400 (at current fee level) to \$18,300 (at average regional fee level)	<u>90-cow operation with 30% forage dependency:</u>
	20 years: 53-cow loss and net cash returns loss of \$4,600 (at current fee level) to \$15,600 (at average regional fee level)	20 years: 56-cow loss and net cash returns loss of \$4,800 (at current fee level) to \$15,700 (at average regional fee level)	20 years: 32-cow loss and net cash returns loss of \$2,700 (at current fee level) to \$14,900 (at average regional fee level)	20 years: 80-cow loss and net cash returns loss of \$6,800 (at current fee level) to \$16,500 (at average regional fee level)	28-cow loss and net cash returns loss of \$2,400
	<u>90-cow operation with 30% forage dependency:</u>	<u>90-cow operation with 30% forage dependency:</u>	<u>90-cow operation with 30% forage dependency:</u>	<u>90-cow operation with 30% forage dependency:</u>	
	5 years: 0.5-cow loss and net cash returns loss of \$40 (at current fee level) to \$1,400 (at average regional fee level)	5 years: 1-cow loss and net cash returns loss of \$100 (at current fee level) to \$1,400 (at average regional fee level)	5 years: 0-cow loss and \$0 net cash returns loss (at current fee level) to \$1,400 (at average regional fee level)	5 years: 5-cow loss and net cash returns loss of \$400 (at current fee level) to \$1,200 (at average regional fee level)	



ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
<p>1 2 3 4</p> <p><b>ECONOMIC CONDITIONS (Continued)</b></p> <p><b>Permit Values</b></p>	<p>Retaining the current FRIA fee formula would generally maintain permit values. But uncertainty over future fees may cause permit values to be discounted. The effect on permit values of raising the grazing fee would vary by state and permittee. The significance of the impact would depend on when the permit was acquired. For permittees just purchasing permits where the permit values were not discounted, the impact might be significant. For permittees who have owned their permits for years, the impact might not be significant. Because they have benefited from lower fees through the years and have thus already captured much of the permit value.</p> <p>The value lost from reductions in federal in federal forage would vary considerably depending on such factors as: how critical federal grazing is to the economic viability of the ranch, alternative sources of forage, season of use, the percentage of grazing eliminated, and location of the allotment.</p>	<p>The impact on permit value due to the grazing fee would be the same as Current Management. The overall impact on permit value from federal AUM reductions would be greater than Current Management, but would vary considerably from permittee to permittee. Some permittees would have no reductions in permit value while others would lose considerable permit value, at least in the short run.</p>	<p>The impact on permit value due to the grazing fee would be the same as Current Management. The overall impact on permit value from federal AUM reductions would be less than Proposed Action, but would vary considerably from permittee to permittee.</p>	<p>The impact on permit value due to the grazing fee would be the same as Current Management. The overall impact on permit value from federal AUM reductions would be much greater than under the Proposed Action. The impact on the permit value of individual permittees would vary considerably with some permittee's permit values being entirely eliminated.</p>	<p>Permit value would be eliminated.</p>

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
ECONOMIC CONDITIONS (Continued)	<u>GRAZING FEE RECEIPTS:</u>  <u>Under current PRIA level:</u>  5 years: -\$1.5 million (-5%)  20 years: -\$6.2 million (-20%)  <u>Under other fee levels:</u>  5 years: \$6.3 million (21%) to \$69.5 million (226%)  20 years: \$468,000 (2%) to \$53.7 million (174%)  <u>PILT:</u>  Counties that receive payments in lieu of taxes (PILT) under PILT "Formula A" may experience a decrease in PILT payments if county grazing fee receipts increase. But <u>total</u> receipts paid to these counties (the sum of grazing fee receipts and PILT payments) would remain unchanged. Counties that receive PILT payments under PILT "Formula B" would experience no change in PILT payments regardless of changes in grazing fee receipts.	<u>GRAZING FEE RECEIPTS:</u>  <u>Under current PRIA level:</u>  5 years: -\$3.7 million (-12%)  20 years: -\$6.5 million (-21%)  <u>Under other fee levels:</u>  5 years: \$3.6 million (12%) to \$62.1 million (202%)  20 years: \$77,000 (0.2%) to \$52.6 million (171%)  <u>PILT:</u>  Same as under Current Management	<u>GRAZING FEE RECEIPTS:</u>  <u>Under current PRIA level:</u>  5 years: -\$923,000 (-3%)  20 years: -\$3.7 million (-12%)  <u>Under other fee levels:</u>  5 years: \$7.1 million (23%) to \$71.6 million (233%)  20 years: \$3.6 million (12%) to \$62.1 million (202%)  <u>PILT:</u>  Same as under Current Management	<u>GRAZING FEE RECEIPTS:</u>  <u>Under current PRIA level after and federal forage fee levels:</u>  5 years: -\$11.2 million (-37%) to -\$15.4 million (-50%)  20 years: -\$3.4 million (-11%) to -\$9.2 million (-30%)  <u>Under other fee levels:</u>  5 years: \$0 to \$22 million (71%)  20 years: \$18.8 million (61%) to 43.1 million (140%)  <u>Under the modified PRIA fee level:</u>  Receipts would decline slightly over the short term (5 years), \$246,000, and increase in the long term (20 years), \$12 million (39%).  <u>PILT:</u>  Same as under Current Management	<u>GRAZING FEE RECEIPTS:</u>  Grazing fee receipts would be eliminated. Estimated reduction is \$30.8 million.  <u>PILT:</u>  Counties that receive PILT payments under PILT "Formula A" would receive higher PILT payments because grazing fee receipts that are normally deducted from PILT payments under this formula would be eliminated. Counties that receive PILT payments under PILT "Formula B" would experience no change in PILT payments regardless of the elimination of grazing fee receipts.
Grazing Fee Receipts and Payments					

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
SOCIAL CONDITIONS	<p>Impacts to ranchers would range from slight under the current fee formula to losses in income and possible declines in social well-being under higher fee formulas. Permittees would favor this alternative at the current fee level.</p> <p>Social impacts in most counties and communities would be slight. In counties and communities that depend more on tourism and recreation, differences in opinions and values among groups could reduce community cohesiveness.</p>	<p>Impacts to ranchers due to income losses and changes in ranch operations would be greater than under the Current Management and could result in higher levels of stress and increased stress-related problems.</p> <p>Social impacts in ranching-dependent communities would be greater than under the Current Management.</p> <p>Social impacts in counties and communities less dependent on ranching would be similar to those under Current Management.</p> <p>This alternative is consistent with the attitudes of increasing numbers of people in the West and across the country who believe that rangeland management should emphasize protection of rangeland resources rather than livestock management.</p>	<p>Harm to permittee social well-being would be less than under the Proposed Action. Permittees would have more control over their operations and would favor this alternative at the current fee level.</p> <p>Social impacts in ranching-dependent counties and communities would be slight. In counties and communities that depend more on tourism and recreation, differences in opinions and values among groups could cause reduced community cohesiveness.</p> <p>This alternative is inconsistent with the attitudes of increasing numbers of people in the West and across the country who believe that rangeland management should emphasize protection of rangeland resources rather than livestock management.</p>	<p>Social impacts to ranchers due to income losses and changes in ranch operations would be much greater than under the Proposed Action and could include some permittee outmigration. Negative permittee attitudes toward the Federal Government would increase. Some permittees might limit access opportunities to the public. Permittees would not favor this alternative at any fee level.</p> <p>Negative impacts to ranching-dependent communities could include reduced leadership and decreased revenues for local infrastructure and services. In counties and communities that are undergoing rural development and increases in tourism and recreation, differences in opinions and values among groups could cause reduced community cohesiveness.</p> <p>This alternative is consistent with the attitudes of increasing numbers of people in the West and across the country, who believe that rangeland management should emphasize protection of rangeland resources</p>	<p>Social impacts to ranchers due to income losses and changes in ranch operations would be greater than under the Environmental Enhancement alternative. Permittee reactions to this alternative would be extremely negative.</p> <p>Impacts to counties and communities would be similar to but more severe than under the Environmental Enhancement alternative.</p> <p>Most people in the West and across the country might feel that this alternative is too restrictive in removing all livestock from federal lands.</p>

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CHAPTER 3  
AFFECTED ENVIRONMENT

GENERAL SETTING

Chapter 3 describes the physical, biological, social, and economic environment of the West that would be affected by implementing the Proposed Action or any other alternative. Prime and unique farmlands, hazardous and solid wastes, and areas of critical environmental concern (ACECs) would not be affected by the Proposed Action or alternatives and are not discussed. Many resources protected by ACECs, however, would be affected and are described in this chapter.

Most federal lands grazed by livestock are in the 17 contiguous western states. (See Table 3-1.) The 17 states have a combined total of 1.16 billion acres of land, of which about 177 million acres are administered by BLM and 145 million acres are administered by the Forest Service. Roughly 28 percent of all the land in the western states is federal land, although percentages vary from 0.2 percent federal land in Kansas to almost 77 percent federal land in Nevada. A foldup map enclosed in this EIS shows the ownership and location of federal land in the 17 western states. The proposed changes to management regulations specific to the Forest Service apply to National Forest System lands in the Eastern States.

Table 3-1: FEDERAL LAND IN 17 WESTERN STATES (SURFACE ACRES)

	TOTAL ACRES	BLM ACRES	FS ACRES
ARIZONA	72,688,000	14,257,623	11,246,668
CALIFORNIA	100,206,720	17,240,275	20,615,963
COLORADO	66,485,760	8,309,528	14,466,612
IDAHO	52,933,120	11,859,423	20,440,564
KANSAS	52,510,720	42	108,175
MONTANA	93,271,040	8,066,927	16,806,126
NEBRASKA	49,031,680	7,613	351,926
NEVADA	70,264,320	47,998,825	5,801,183
NEW MEXICO	77,766,400	12,878,826	9,321,181
NORTH DAKOTA	44,452,480	66,484	1,105,786
OKLAHOMA	44,087,680	2,630	300,543 <sup>a</sup>
OREGON	61,598,720	15,714,236	15,655,087
SOUTH DAKOTA	48,881,920	279,150	2,012,974
TEXAS	168,217,600	0	754,640 <sup>b</sup>
UTAH	52,696,960	21,937,273	8,098,644
WASHINGTON	42,693,760	327,284	9,160,076
WYOMING	62,343,040	18,399,710	9,245,737
TOTALS	1,160,129,920	177,345,849	145,491,885 <sup>c</sup>

<sup>a</sup> Includes 254,257 acres (Ouachita National Forest) that would not be subject to proposed fee changes.

<sup>b</sup> Includes 637,109 acres (Angelina, Davy Crockett, Sabine, and Sam Houston National Forests) that would not be subject to proposed fee changes.

<sup>c</sup> A total of 144,600,519 acres would be subject to proposed fee changes.

Sources: BLM 1992a; Forest Service 1993c

#### ANALYSIS AREAS

Public rangelands in the 17 western states have a wide range of climates, landforms, vegetation types, and social and economic settings. Physical characteristics, such as climate and soil types, and biological parameters, such as vegetation productivity and the presence of special status species, differ markedly. Because physical and biological attributes differ in each area, the alternatives will likely affect each area differently.

Six regions were selected for the analysis, as shown on Map 3-1. The boundaries divide the areas by their dominant vegetation and watershed characteristics. Cultural and economic characteristics were also considered. Some boundaries were adjusted to match BLM and Forest Service administrative boundaries and ease data analysis. Vegetation and watershed characteristics help classify broad areas of the West by the type of soils and climate and past land use practices. These characteristics also show the effects of changing rangeland management practices.

The analysis areas are as follows: (1) Coastal, (2) Colorado Plateau, (3) Columbia Basin, (4) Great Basin, (5) Rocky Mountains and High Plains, and (6) Southwest. Riparian areas are addressed separately within this analysis. The six analysis areas cover roughly 244 million acres of federal land grazed by livestock (See Table 3-2.)

In western Washington, Oregon, and California, the Coastal analysis area has a Mediterranean climate and vegetation in the south and temperate rain forests in the north. Perhaps the most biologically diverse of the analysis areas, this region also has forest industries and extensive urban and agricultural areas.

Including a diverse array of landforms and climates, the Colorado Plateau analysis area encompasses the middle and upper portions of the Colorado River drainage basin and a portion of the upper Rio Grande basin. This region's southern and western portions consists of canyon country with dissected sandstone plateaus. Its northern portion consists largely of high-elevation plains. The remainder of the region is dominated by high mountains and alpine plateaus.

Table 3-2: LAND MANAGED BY BLM AND FOREST SERVICE BY ANALYSIS AREA

ANALYSIS AREA	TOTAL ACRES (thousands)			ACRES WITHIN GRAZING ALLOTMENTS (thousands)		
	BLM	FOREST SERVICE	COMBINED	BLM	FOREST SERVICE	COMBINED
COASTAL	4,563	25,742	30,305	1,519	8,257	9,776
COLORADO PLATEAU	31,101	28,253	59,354	28,749	24,944	53,693
COLUMBIA BASIN	18,381	42,614	60,995	19,026*	12,908	31,934
GREAT BASIN	58,719	19,077	77,796	55,733	15,450	71,183
ROCKY MOUNTAINS/ HIGH PLAINS	21,285	18,987	40,272	20,794	13,822	34,616
SOUTHWEST	43,297	9,710	53,007	33,073	9,507	42,580
TOTALS	177,346	144,383	321,729	158,894	84,888	243,782

\* Includes land withdrawn by the Bureau of Reclamation, on which livestock grazing is administered by BLM

The Columbia Basin analysis area generally encompasses the Columbia River drainage east of the Cascade Mountains. Most of the analysis area is dominated by rugged, forested mountains, heavy winter snow accumulations, and fast-flowing rivers supporting valuable anadromous fisheries. The remainder of the area generally has gently rolling or hilly, arid landscapes dominated by volcanic flows and sagebrush. The southern and central portions of the Columbia Basin tend to be in poorer condition. There exotic annual grasses have become firmly established. Lowlands in the north support more native perennial grasses and have a higher potential to respond to changes in grazing management.

The Great Basin analysis area encompasses the cold deserts of Nevada, western Utah, southeast Oregon, and extreme eastern California. The analysis area has inland basins bisected by north-south trending mountain ranges. Vegetation and soil productivity vary from low near the playa lakebeds in most valley bottoms to high along streams and in mountainous areas. Vegetation types generally consist of salt-tolerant shrubs interspersed with bunchgrasses. The drier valleys, especially in the higher elevations, respond to changes in grazing management slower than wetter areas.

The Rocky Mountains and High Plains analysis area generally encompasses the western Great Plains, isolated mountain islands, and the eastern slopes of the Rocky Mountains in Montana, Wyoming, Colorado, and northeast New Mexico. The Rocky Mountains

have high soil productivity, a predominance of grasses in rangeland vegetation types, and a relatively high response to changes in grazing management.

The Desert Southwest analysis area includes the Mojave, Chihuahuan, and Sonoran Deserts of southern California, Arizona, Nevada, New Mexico, and Utah. The area has a long frost-free growing season and an arid climate. It includes a mosaic of vegetation but is dominated by shrubsteppe and desert shrub communities. The area also includes many desert and alpine mountain ranges that support a variety of pinyon-juniper woodlands and conifer forests.

### CLIMATE

Climate is a major determinant of the distribution and growth of rangeland vegetation and the formation and erosion of rangeland soils. The study area consists of five major climatic types (Trewartha and Horn 1980). The coastal Pacific Northwest, from northern California to Canada, has a temperate oceanic climate. The coastal Pacific Southwest has a subtropical dry summer--Mediterranean--climate. The deserts of southern Nevada, southwest Utah, northwest, western, and southern Arizona, and southern New Mexico have a subtropical, hot desert climate. The Cascade and Rocky Mountains have variable highland climatic conditions. And the remainder of the study region (where most nondesert BLM-administered lands are located) has a continental, cold steppe climate.

Temperatures vary mostly with latitude, elevation, moisture, and to a lesser extent, microclimate. At higher elevations, freezing temperatures are possible throughout the year.

Annual precipitation greatly varies, mainly because of local topography and the variability of storm tracks. Precipitation comes from spring, summer, and fall thunderstorms-- except in the coastal Pacific Northwest, Pacific Southwest, and areas with high snowpack. The West gets snow at high latitudes and elevations throughout the year. The highest elevations receive the most snow.

The temperate oceanic climate is dominated by moist, onshore winds. Precipitation is reliable and abundant. Growing seasons are unusually long at high latitudes. Areas that have a temperate oceanic climate are cooler in the summer than other areas at similar latitudes.

The subtropical dry summer (Mediterranean) climate type is well known for its abundant sunshine and dry summers, with wet and mild winters. Freezing conditions are rare, making growing seasons long.



The subtropical, hot desert climate is continental and dry with slight but highly variable precipitation. As a result, deserts have sunny days, clear nights, high evaporation, and large daily and seasonal temperature changes.

Complex mountainous topography causes much variation in site-specific temperature and precipitation of highland climates.

The continental, cold steppe climate type is typified by low to moderate precipitation, which usually falls in summer. Temperatures vary from cold winters to hot summers, and spring typically arrives suddenly and warms quickly.

The following analysis area descriptions are generalizations of their complex climatic conditions. Site-specific monitoring is needed to determine local climatic conditions. Table 3-3 presents climatic data for a variety of western cities and towns.

Table 3-3: CLIMATE DATA

Station	Analysis Area	Elevation (Ft. Mean) Sea Level	Annual Mean Temp (°F)	Annual Mean Prec (")	Frost Free Days
Lakeview, OR	Great Basin	4,780	46	15	101
Austin, NV	Great Basin	6,600	48	13	110
McGill, NV	Great Basin	6,300	47	9	118
Winnemucca, NV	Great Basin	4,300	49	8	104
Deseret, UT	Great Basin	4,590	49	7	117
Spokane, WA	Columbia Basin	2,360	48	16	163
Pendleton, OR	Columbia Basin	1,480	63	12	188
Caldwell, ID	Columbia Basin	2,370	51	11	144
Aberdeen, ID	Columbia Basin	4,410	45	9	100
Challis, ID	Columbia Basin	5,180	44	7	113
Alton, UT	Colorado Plateau	7,040	45	16	110
Blanding, UT	Colorado Plateau	6,040	50	13	149
Holbrook, AZ	Colorado Plateau	5,070	55	9	159
Grand Jct., CO	Colorado Plateau	4,840	53	9	182
Vernal, UT	Colorado Plateau	5,260	45	8	119
Moccasins, MT	Rockies/High Plains	4,300	43	15	110
Gillette, WY	Rockies/High Plains	4,640	45	15	125
Cheyenne, WY	Rockies/High Plains	6,120	45	15	133
Ekalaka, MT	Rockies/High Plains	3,430	44	15	115
Rocky Ford, CO	Rockies/High Plains	4,170	53	12	157
Ft. Baynard, NM	Desert Southwest	6,140	55	16	125
Tombstone, AZ	Desert Southwest	4,610	63	14	233
Artesia, NM	Desert Southwest	3,320	60	12	198
Caliente, NV	Desert Southwest	4,400	53	9	152
Parker, AZ	Desert Southwest	410	71	5	285
Salem, OR	Coastal	200	52	40	190
Ukiah, CA	Coastal	630	59	36	215
Olga, WA	Coastal	80	50	29	237
Paseo Robles, CA	Coastal	700	59	14	194
Redlands, CA	Coastal	1,320	64	13	306

Source: U.S. Department of Commerce, National Climatic Data Center

The Great Basin analysis area has a subtropical, hot desert climate type throughout central Nevada, and a continental, cold steppe climate type in the remaining area. Scattered mountainous areas exhibit variable highland climatic conditions.

In the desert, average annual precipitation ranges from 6 to 10 inches, resulting mostly from winter storms and some summer thunderstorms. Frost-free periods normally last 3 to 4 months.

In other portions of the Great Basin, the average annual precipitation ranges from 8 to 16 inches. Most precipitation falls between spring and fall. Frost-free periods normally last for 9 to 11 months.

The Columbia Basin analysis area has mainly a continental, cold steppe climate type surrounded by the variable highland climatic areas of the Cascade Mountains to the west and the northern Rocky Mountains to the north and east. In the lowlands, average annual precipitation varies from 8 to 16 inches. Most of the precipitation falls between spring and fall. Frost-free periods normally last 9 to 11 months.

The Colorado Plateau analysis area is bordered on the east by the central and southern Rocky Mountains, on the north by the Wind River and Teton ranges, and on the west by the Uinta Mountains and the Wasatch Front. Most of the rest of the analysis area has a continental, cold steppe climate type, with a small area of subtropical, hot desert in southcentral Utah.

Climatic conditions are highly variable. The average annual precipitation ranges from 12 to 20 inches. Most precipitation falls in the summer as thunderstorms. Frost-free periods normally last 3 to 7 months.

The Rocky Mountains and High Plains analysis area has mainly a continental, cold steppe climate, bordered on the west by the variable highland climate of the northern, central, and southern Rocky Mountains. Precipitation amounts are fairly uniform. In the Rockies and High Plains annual precipitation averages 14 to 20 inches. Most precipitation falls from spring to fall during thunderstorms. Frost-free periods normally last from 3 to 9 months.

The Desert Southwest analysis area has a mostly subtropical, hot desert climate type with a continental, cold steppe, and variable highland climate from the Grand Canyon region along the White Mountains into western New Mexico.

In the Desert Southwest, the annual precipitation averages less than 10 inches, falling primarily during summer thunderstorms. Frost-free periods normally last from 8 to 10 months.

The Coastal analysis area has a temperate oceanic climate in the north, and a subtropical dry summer (Mediterranean) climate in the south. The analysis area is bordered on the east by the Cascade Mountains and the Sierra Nevada. Annual precipitation varies from 12 inches in the chaparral and mountain shrub areas in the south to 100 inches in the Pacific Northwest. Frost-free periods range from 4 to more than 11 months.

#### **AIR QUALITY**

The air quality above most western federal lands cannot be easily described, since monitoring data has not been gathered for most pollutants outside urban areas. In less developed portions of the West, however, ambient pollutant levels are expected to be near or below the measurable limits.

Air quality regulations consist of the National Ambient Air Quality Standards (NAAQS) and the Prevention of Significant Deterioration (PSD) increments. The NAAQS limit the amount of specific pollutants allowed in the atmosphere.

PSD Class I areas, predominately national parks and certain wilderness areas, have the greatest limitations. Virtually any degradation would be significant. Areas where moderate, controlled growth can take place are designated PSD Class II. PSD Class III areas allow the greatest degree of impacts.

A total of 114 Class I areas have been designated in the EIS area, consisting predominantly of lands administered by the National Park Service, U.S. Fish and Wildlife Service, and the Forest Service. Most Class I areas are in mountainous regions, but some are at lower elevations. All BLM-administered lands are classified PSD Class II.

#### **GRAZING ADMINISTRATION**

BLM administers livestock grazing on federal land under the authority of Sections 3 and 15 of the Taylor Grazing Act. The Forest Service administers grazing on federal land under authority of the Organic Administration Act, Granger-Thye Act, Forest and Rangeland Renewable Resources Planning Act, and National Forest Management Act. Other laws governing livestock grazing on federal land include the Bankhead-Jones Farm Tenant Act, National Environmental Policy Act (NEPA), Federal Land Policy and Management Act, and Public Rangelands Improvement Act.

The administration of livestock grazing involves issuing permits and annual grazing licenses, verifying that livestock permittees are complying with the terms of their permits and federal regulations, preparing land use and activity plans, and conducting rangeland monitoring studies.

The costs of managing public rangeland are shown in Table 3-4. The nongrazing expenses are for activities that preserve rangeland, including collecting data for monitoring rangeland condition and preventing unauthorized uses of federal rangeland.

All other expenses in the rangeland program are for managing livestock grazing: administering permits, designing grazing systems, complying with the National Environmental Policy Act, preparing and implementing plans, making improvements on grazed rangelands, and working with permittees. BLM and the Forest Service spend an average of \$3.99 per animal unit month (AUM) of forage grazed by livestock on lands they administer. In 1993, the grazing fee was \$1.86/AUM.

The Forest Service has completed forest plans and EISs. The plans specify standards and guidelines for livestock grazing on national forests and grasslands. BLM has prepared resource management plans and EISs. The age of BLM's land use plans on grazing management vary. Plans completed 7 or more years ago are usually outdated because they do not address more recent policies on riparian management. Allotment management plans (AMPs) incorporate current policy as well as land use plan guidance.

Table 3-4: BLM AND FOREST SERVICE RANGELAND MANAGEMENT PROGRAM COSTS FOR 1993

BLM AND FOREST SERVICE-ADMINISTERED LANDS	RANGELAND PROGRAM COSTS		LIVESTOCK GRAZING EXPENSES		NONGRAZING EXPENSES <sup>1</sup>
	TOTAL (\$1,000)	COST/AUM (\$)	TOTAL (\$1,000)	COST/AUM (\$)	TOTAL (\$1,000)
RANGELAND MANAGEMENT	77,045	4.72	52,683	3.23	24,362
RANGELAND IMPROVEMENTS	16,991	1.04	12,456	0.76	4,535
TOTAL	94,036	5.76	65,139	3.99	28,897

<sup>1</sup> The nongrazing expense is the proportion of the 1993 appropriation attributable to a rangeland ecology program rather than the amount needed to meet rangeland ecology objectives.

BLM authorizes more than 15 million AUMs of forage for the lands it administers; 2.1 million of those AUMs are in suspended nonuse. Suspended nonuse refers to forage that at one time livestock could graze but was later suspended from grazing because an evaluation found that the rangeland could not support



that high a level of grazing. Though "suspended" forage cannot be used, it remains as part of the total number of AUMs on a permit. About 8.8 million AUMs are actively used on national forests and grasslands. The Forest Service does not allow suspended nonuse.

Over each of the last 3 years, an average of 82 percent of BLM-managed forage that was designated for the livestock industry's use was paid for and consumed. In 1992, 83 percent of Forest Service-managed forage that was designated for the livestock industry's use was paid for and consumed.

Permittees can apply for annual nonuse status of their AUMs for personal reasons or to conserve federal rangelands. Personal reasons might include financial hardships that full use would require and the logistical problems of moving livestock from private pastures to federal rangeland. Resource conservation use is usually authorized to improve resources and meet resource condition objectives.

From 1990 to 1992, an average of 18 percent of BLM active preference was put into nonuse. In 1992, 17 percent of the Forest Service permitted use was approved as nonuse. Of the total nonuse taken, about 63 percent of BLM nonuse and 57 percent of the Forest Service nonuse was approved for personal reasons.

Permits have been issued to about 27,000 livestock operators who use BLM or Forest Service-administered land. BLM's permits either have terms of 10 years (55 percent of all BLM permits), 5 to 10 years (13 percent), or less than 5 years (32 percent). Almost all Forest Service term permits are issued for 10 years.

Forage authorized for livestock grazing ranges from less than 100 AUMs to more than 5,000 AUMs. Nationwide, about 42 percent of BLM permits and 30 percent of Forest Service permits are issued for less than 100 AUMs. (See Table 3-5.)

In 1992, BLM-administered land had 1,520 base property leases and 756 livestock pasturing agreements. Forest Service regulations require permittees to own their base property and livestock.

In 1992, roughly 100 BLM grazing decisions were appealed. Depending on the backlog of appeals, the timeframe for a grazing decision to be implemented can range from 3 months to 4 years.

#### **RANGE BETTERMENT FUNDS**

Receipts from grazing fees are distributed, according to legislative requirements, to the agencies' Range Betterment Funds, states, and the U.S. Treasury. During fiscal year 1993, the BLM Range Betterment Funds totalled \$8.7 million. In 1991, the Forest Service's Range Betterment Funds totaled \$5.4 million.

Table 3-5: NUMBER OF PERMITS AND LEASES BY AUM AUTHORIZATIONS

AGENCY	NUMBER OF PERMITS		
	<100 AUMs	101-500 AUMs	>500 AUMs
BLM	8,022	5,904	5,041
FOREST SERVICE	2,335	2,695	2,787
TOTALS	10,357	8,599	7,828

### VEGETATION

Vegetation can be described in many ways. For example, plant communities are often at first described by the kind and abundance of organisms within them. Since communities are often modified by humans and plants and animals compete for survival, communities constantly experience plant succession and fluctuating population and productivity levels. As new information is gathered, communities may be described by their responsiveness and resistance to environmental change or disturbance, by the roles each species plays within it, by the roles each community plays within larger landscapes, and by the economic and other values of key species and communities to humans.

Map 3-2 shows physiographic regions of the West. Map 3-3 shows vegetation zones of the West.

The pattern of vegetation in North America has fluctuated widely in the past 10,000 to 12,000 years, following the melting of the continental glaciers. During the postglacial period, the climate was notably warmer and cooler than today. The boundaries of forests and shrub-like grasslands have fluctuated accordingly (Mehring and Wigand 1987), as have the boundaries of other drier-site plant communities. Some semiarid pristine systems in the West can barely reach stability, and some may have been remnants of more favorable climatic conditions. A trend toward greater aridity and increasing xerophytic woody plants may have already existed. When Europeans saw rangelands in western North America, they observed ecosystems that were in a state of flux, but they often interpreted the condition as being static.

Before European settlement, fire was the most common influence on the landscape in the intermountain West (Gruell 1983), and in most of the Southwest (Wright 1990). But in drier parts of the West, the significance of the effects of fire on vegetation is difficult to separate from the effects of drought (Wright 1990).

Woody species have become dominant in areas where frequent fires used to control them. Successional changes on some land today did not likely happen before the 1600s, when frequent fires suppressed woody vegetation (Gruell 1983).

After Europeans settled the West, grazing and cultivation reduced fuels, and organized fire suppression began. Thus, the number and size of fires was drastically decreased (Gruell 1983; Swetnam 1990). Fire exclusion has most affected ecotones, where naturally occurring fires previously removed woody species.

Map 3-2    PHYSIOGRAPHIC REGIONS

Map 3-3 VEGETATION ZONES



Managing ecosystems requires knowledge of the effects of climate, especially drought, insects, disease, livestock grazing, browsing by wild ungulates, fire, elevation, latitude, slope, temperature inversions, and cold air drainages (West and Van Pelt 1987). Knowledge of the frequency and consequences of natural disturbances is needed to understand what environmental pressures vegetation has adapted to, the kinds or amounts of vegetation a community can support, and the effects of treating the community.

A land manager chooses to encourage or retard plant succession to achieve the vegetation community that best meets multiple resource management objectives. In many arid and semiarid areas of the West, removing livestock grazing pressure alone does not dramatically or rapidly change vegetation (Potter and Krenetsky 1967). Present vegetation communities are a product of past human use and alteration of former disturbance regimes, but are subject to many demands and expectations.

Noxious plants are a major concern on most western rangelands. Most noxious plants take advantage of vegetation communities under stress or disturbed by fire or heavy grazing and occupy the interspaces to get a foothold in the plant community. Opportunistic noxious plants include cheatgrass, medusahead, annual mustards, Russian thistle, Canada thistle, Scotch thistle, musk thistle, yellow toadflax, and halogeton. Other noxious plants can become established in pristine vegetation communities and over time dominate the site. Noxious plants include leafy spurge; Russian, spotted, and diffuse knapweed; and yellow starthistle. Noxious plants are common and usually increase in all ecosystems in the West. Once established, noxious plants spread rapidly, becoming increasingly difficult to control. Economic losses as a result of reductions in land productivity for livestock grazing and reductions in wildlife habitat are significant (BLM 1991a).

Disclimax is the term for a stable ecological community that has resulted from repeated or continuous disturbance by humans, domestic animals, or natural events. Disclimax communities differ completely from communities that previously occupied an area and have little chance of reverting to the original community. Cheatgrass and medusahead annual rangelands fit this category, as do sites dominated by dense sagebrush or juniper communities that have displaced perennial grasses. A disclimax community may diminish the biological diversity of a landscape. If it becomes too large, its state of disclimax can significantly change the objectives for managing all resources. For communities that are at risk of disclimax, BLM and Forest Service are forced to mechanically treat the vegetation, usually by seeding or chaining.

#### UPLAND

Upland vegetation on most western rangelands is heavily affected by the amount and timing of precipitation during the year.

Properly managed upland areas in the 12-inch or more precipitation zone may significantly improve within 20 years. The higher precipitation zones improve more rapidly because:

- ♦ Soils are generally more fertile, deeper, and more productive in higher precipitation zones.
- ♦ Generally, the higher the precipitation the more production of vegetation through seedling establishment, sprouting, and growth.
- ♦ Soils are usually less fertile, shallow, and less productive in the lower precipitation zones.
- ♦ Seedlings do not as successfully become established in the lower precipitation areas as in the higher precipitation areas as a result of poor soils and competition for moisture with other plants.
- ♦ Areas that have low precipitation and poor soils have less vegetation than the higher precipitation areas. To survive in the drier zones plants need large spaces between them to spread their roots and capture moisture. Areas with higher precipitation have enough moisture and productive soils to allow plants to survive close to each other.
- ♦ The ability of vegetation to respond to improved management is influenced significantly by soil productivity and the amount of moisture to induce growth. In the lower precipitation areas, vegetation struggles to produce seeds and grow.

#### **SAGEBRUSH**

Within the upper and lower basin and range provinces, the Colorado Plateau, the Columbia Plateau, and the Wyoming basins, sagebrush often dominates dry slopes and lava bed flats, ancient lakebeds, and broad alluvial basins. Most of the sagebrush zone is found at elevations from 2,000 to 7,000 feet. Where sagebrush dominates below 7,000 feet, annual precipitation varies between 8 and 20 inches (Wright and others 1979).

The typical sagebrush community has fairly dense to open vegetation with nonspiny shrubs 2 to 6 feet high and an understory of perennial and annual grasses and forbs (Cronquist and others 1972). Increasingly to the south, however, sagebrush may grow to the virtual exclusion of grasses and does not represent a grazing disclimax. Important shrubs in the sagebrush community include big sagebrush, black sagebrush, low sagebrush, rabbitbrushes, Mormon tea, curly leaf mountain mahogany,

bitterbrush, snowberry, and horsebrush. Important perennial grasses include Sandberg bluegrass, bluebunch wheatgrass, western wheatgrass, Idaho fescue, Great Basin wildrye, junegrass, Indian ricegrass, squirreltail, muttongrass, and needle-and-thread grass. Red brome, medusahead, and cheatgrass are introduced annual grasses that have become abundant. Common forbs include wild onion, sago lily, balsam root, mulesear, Indian paintbrush, larkspur, tarweed, rubberweed, lupine, phlox, locoweed, and annual mustards (Cronquist and others 1972).

During the short period after snow melts moisture and temperature are most favorable for growth. Precipitation during the growing season is less dependable for remoisturizing soil. The growing season also has high temperatures, which promote more evapotranspiration than occurs during snow melt. Grasses and forbs depend on resources in the surface soil between shrubs and therefore have a constrained growing period.

Sagebrush is extremely competitive when its environment has just the right characteristics. It can draw its moisture and nutrients from deep in the profile or through fibrous roots near the surface, giving it high resistance to environmental extremes. It can survive more than 40 years, has reproductive capacity through abundant and consistent seed set, and in its foliage produces secondary chemical compounds that probably discourage herbivores from consuming it. Insects and fire appear to be the main sagebrush killers (West 1983).

Disturbances from cultivation, fire, herbicides, excessive grazing, and insects, combined with natural variability, have changed the botanical composition and productivity of native sagebrush communities. Since the beginning of European settlement, the number of species native to sagebrush communities has declined, sagebrush has become more abundant, and many exotic plants, mostly annuals, have invaded the communities. The sagebrush zone itself is ecologically stable, and its boundaries closely resemble those at the time of European settlement (Tisdale and Hironaka 1981). At higher elevations the sagebrush zone often becomes integrated with ponderosa pine, Douglas-fir, and aspen. Western juniper is invading many portions of sagebrush ecosystems at elevations below 5,000 feet.

Before 1900, livestock greatly reduced the more palatable herbaceous component of the sagebrush region, as most varieties of sagebrush are not highly palatable to livestock, especially during the growing season. The affected sagebrush areas were susceptible to invasion by aggressive, less palatable plants, particularly nonnative annuals such as cheatgrass and medusa-head (Brown 1982; Tisdale and Hironaka 1981; West 1983).

Populations of annuals cannot be reduced through ecological succession within a reasonable timeframe, not even with improved

management systems or elimination of livestock grazing. Cheatgrass produces enormous numbers of seedlings after the first fall rain, and the root system can grow throughout most of the winter. Native perennial grasses have higher soil temperature thresholds for growth. By spring, annuals have built extensive root systems that can use soil moisture earlier and at higher rates than native grasses (West 1983). The annual grasses generally dry out by mid-June, and the dry stands are susceptible to wildfire.

Livestock grazing can reduce the amount of cheatgrass on rangelands and thus the chance of fires. If cheatgrass is reduced in the spring, less cheatgrass is present to burn after mid-June. But managers must ensure that early livestock grazing will not degrade the health of perennial grasses. A significant problem is created when perennial grasses are replaced with medusahead, cheatgrass, and other annual plants.

The fire history of the sagebrush region has not been firmly established, but fire was probably uncommon on drier sites because of sparse fuels and more frequent on more mesic sites with greater herbaceous production (Wright and others 1979). Burning every few years or burning in early summer depletes perennial grasses and encourages the growth of annuals, which create flammable fuel and further increase fire frequency (Wright and Bailey 1982; West 1983). Once established, cheatgrass may inhibit the growth of perennial plants native to the site, thereby perpetuating the cheatgrass fire cycle, leading to a spiral of deterioration through depletion of volatile nutrients and accelerated soil erosion (West 1983). The incidence of juniper is constantly increasing in this ecosystem, possibly due to the suppression of wildfires.

Crested wheatgrass seedlings represent a significant portion of sagebrush and other communities in southeast Oregon and southern Idaho. Some of the seedlings were planted when the communities were being rehabilitated after wildfires. Crested wheatgrass was commonly used because it was inexpensive and highly adaptable, provided good forage, and improved watersheds. But during drought or other stressful times, annual noxious plants such as halogeton, cheatgrass, and Russian thistle may invade and dominate crested wheatgrass sites. If livestock management was improved, regardless of precipitation factors, crested wheatgrass usually stopped the invasion of annual plants and dominated the site again. Now a better approach, though more expensive, is used by developing a mixture of seeds (sagebrush, native perennial grasses, and other plants) to maintain rangeland biodiversity during rehabilitation.

Sagebrush watershed systems routinely undergo extreme flooding. Where runoff water is concentrated, erosional rills and gully systems have developed. Water yield from most sagebrush



watershed systems is less than 1 inch annually, but 3 to 4 inches may build up on wetter sites (Hibbert 1979).

Larger streams and rivers typically originate at higher elevations and flow through more arid sagebrush regions. Stream systems that are relatively stable, without incised channels, and in soils with good water-holding capacity can store large amounts of water during overbank flooding, resulting in local groundwater development. Incised streams often do not support nearby groundwater systems and result in ephemeral conditions.

Water quality is generally acceptable for most wildlife and livestock use, with pH above 7.0, high alkalinity, and elevated dissolved solids (greater than 200 milligrams per liter). Usually, temperature and sediment are the limiting water quality criteria for fisheries. Temperature extremes respond to the air temperature, topographic and vegetation shading, and the associated groundwater system.

Though less biologically diverse than most vegetation communities, sagebrush communities are wide and elevated and create significant wildlife habitats. Sagebrush is typically associated with cold deserts, whose snow and cold weather cause wildlife to seasonally shift habitats. Sagebrush communities commonly have pinyon-juniper or conifer forests above and saltbush, greasewood, riparian, grassland, or other sagebrush flats below. Wildlife can use these communities alone or in combination with other habitats.

#### **DESERT SHRUB**

Desert shrub communities occupy the hot and cold deserts of Arizona, Nevada, Utah, and California. These deserts are dominated by shrubs in open stands, with a large amount of bare soil or desert pavement exposed. Understory vegetation is often sparse at lower elevations except when flushes of annuals are produced by seasonal precipitation in the Mojave and Sonoran deserts.

Desert plants have adapted to the harsh growing conditions in hot and cold deserts in different ways. For example, the vegetation in hot and cold deserts has adapted to receiving 2 to 15 inches of rainfall annually (Benson and Darrow 1981). Phreatophytes, a type of perennial, have extensive root systems that reach water tables. The root systems of perennial shrubs can often access moisture that is deep within soil, as well as shallow roots that compete with herbaceous vegetation for surface moisture. Some plants, such as cacti and other succulents, have special tissue in their stems or leaves to store moisture and limit moisture loss by minimizing transpiration.



Desert plants have combinations of small leaf size and thick waxes, resins, or pubescence on their leaves, and can lose their leaves and become dormant in response to drought. Annuals germinate, mature, and produce seeds only during favorable temperature and moisture conditions, often within a single season. Desert plants have also adapted to drought caused by high soil salinity or alkalinity by removing excess salts from their tissues and regulating salt uptake from their roots.

The Mojave and Sonoran deserts constitute the hot desert portion of the vegetation zone. Located mostly in California, the Mojave extends into southern Nevada, northwest Arizona, and the tip of southwest Utah. The Mojave Desert lies between the cold desert and the Sonoran Desert. Because of its position, the Mojave shares a combination of the cold desert and Sonoran Desert's climate and plant features (Brown 1982). The Mojave desert's precipitation falls mostly in the winter. The Joshua tree is the most recognized but not the most widespread plant in the Mojave. Common shrubs include creosotebush, bursage, thornbush, shadscale, spiny hopsage, and greasewood. Pickleweed, seep weed, alkali weeds, glassworts, and saltgrass are common plants associated with saline basins. The Mojave Desert is especially rich in annual plants, which are abundant during the rainy season in winter and spring (Brown 1982).

The Sonoran Desert receives mostly summer (and some winter) precipitation, separated by spring and fall drought (Brown 1982). Having a high percentage of trees and large shrubs, the Sonoran Desert is particularly rich in succulents (Benson and Darrow 1981). The saguaro cactus is characteristic of the mostly frost-free portions of the Sonoran Desert. Other common shrubs and succulents include creosotebush, blue palo verde, bursage, mesquite, desert ironwood, althorn, ocotillo, jojoba, acacia, and variations of *Opuntia*, yucca, and agave. Annual herbs are abundant after summer and winter rains (Benson and Darrow 1981).

Alkali desert shrub communities generally surround the shores of large prehistoric lakebeds or alkali playas that mark the location of dry lakebeds (Fowler and Koch 1982). The vegetation is dominated by variations of saltbush associated with other xeric shrubs. The alkali desert shrub communities are often remnants of older, more extensive vegetation and provide unique habitats for special status plants and animals.

The effects of historic use on desert shrub communities vary. Ample data exists on the changes in some shrub communities, but the causes of observed change are complex and not always entirely understood. Scientists lack quantitative data on the extent of change in dry regions (Branson 1985).

Fire has never been considered an important factor in managing desert shrub communities. The chance of wildfires is low since

desert shrub communities have low surface biomasses and individual plants are far apart. Livestock grazing, however, is an important factor in managing desert shrub communities, particularly in the cold desert. The degree of change in vegetation, as caused by livestock grazing, depends on the kind of livestock, season and intensity of grazing, and the rangeland's potential for producing vegetation. Observable changes include reduced total cover, palatable shrubs, or grasses and increased exotic annuals or shrubs not eaten by livestock, such as halogeton and Russian thistle (Branson 1985). The palatable shrubs and grasses include black sagebrush, bud sagebrush, winterfat, and Indian ricegrass.

In addition to livestock grazing, disturbances such as building energy and transportation corridors, military operations, surface mining, and recreation have depleted vegetation (Blaisdell and Holmgren 1984).

Hastings and Turner (1965) concluded that warmer temperatures and less rainfall in the past 100 years must be considered the main cause of vegetation change in the Sonoran Desert. But depletion of saguaro populations in parts of the Sonoran Desert has been attributed to suppression of reproduction by livestock grazing (Branson 1985).

Water yield is usually less than 1 inch annually. Most watershed drainages are ephemeral, flowing only during periods of extreme precipitation (Lusby 1979; BLM 1984). Like the sagebrush ecosystem, the few larger surface streams that flow through desert shrub sites originate in higher elevation foothills and mountain areas. Surface water quality is generally poor and limited by sediment, high temperatures, and high dissolved solids.

Because of meager rainfall and some poor soils, the vegetation in hot deserts changes slowly, normally showing a boom and bust pattern in growth. Wildlife in hot deserts have adapted and also tend to slowly respond to changes in vegetation. A challenge in managing hot desert vegetation is to avoid emphasizing common plants and annuals while deemphasizing rare plants and perennials. For example, some annuals can overwhelm a hot desert shrub ecosystem for a few weeks in a year and a few times in a decade. Nongame animals depend on native annuals and some exotic annuals during the long, harsh periods. Nevertheless, perennial grass and forb cover is important to a host of nongame animals in hot deserts. Some native perennials, though grazed by large ungulates, have adapted to hot desert ecosystems.

#### **SOUTHWEST SHRUBSTEPPE**

The southwest shrubsteppe vegetation zone occupies the semidesert grasslands of southeast Arizona and southern New Mexico and the northern Chihuahuan Desert.

Elevations of the semidesert grasslands range from 3,300 to 5,000 feet (Brown 1985). More than half of the 10 to 20 inches of annual precipitation falls during the summer growing season (Benson and Darrow 1981). Semidesert grasslands are best developed on deep, well-drained soils on level sites on the higher plains. Their aspect is a grassy landscape broken up by large, well-spaced shrubs. In the Southwest, semiarid grasslands often form an alternating landscape mosaic with Chihuahuan desertscrub.

Large acreages of this grassland are now dominated by mesquite, tarbush, acacia, and creosotebush. Black grama and tobosa are the most characteristic grasses. Other important grasses on the better sites include sideoats grama, hairy grama, bush muhly, vine mesquite, Arizona cottontop, slim tridens, pappus grass, tanglehead, threeawns, and curly mesquite. The introduced perennial Lehmann lovegrass now occupies extensive areas in some western portions and is spreading at the expense of more palatable native grasses (Brown 1985). Other shrubs and succulents characteristic of this grassland include yuccas, bear grass, sotol, agaves, allthorn, sumac, hackberry, ocotillo, acacias, and mimosas. Many variations of cacti grow in the drier sites, especially on outcrops.

The northernmost extensions of the Chihuahuan Desert cover rain shadow basins, outwash plains, and low hills across southern New Mexico. The Chihuahuan Desert's elevations range from about 3,000 to 5,000 feet. The area receives an annual average of 8 to 12 inches of precipitation, which falls mostly in the summer when evapotranspiration rates are high (Brown 1982). Most perennial vegetation consists of shrubs. Creosotebush, acacias, and tarbush dominate the intermountain plains and lower areas. Mesquite dominates sandy, wind-eroded hummocks. Dense stands of succulents, such as lechuguilla, sotol, yuccas, beargrass, and candelilla, grow on rocky mountain slopes in association with scattered ocotillo and many variations of cacti, including *Opuntia*, *Ferocactus*, *Echinocereus*, *Echinocactus*, and *Mammillaria*. Annuals are important components of the northern Chihuahuan Desert ecosystem during the rainy period of the summer. The prominent understory plants include mariola, goldeneye, desert zinnias, and dogweeds.

The expansion of the Chihuahuan Desert into former grassland is documented (Brown 1982), but how the this desert expanded is not well understood. Indians may have frequently burned desert grasslands before European settlement, preventing encroachment of woody species (Benson and Darrow 1981).

Fewer fires and less livestock overgrazing caused woody communities to expand from sites at lower and higher elevations. Furthermore, cattle helped spread mesquite by depositing undigested mesquite seeds in grasslands (Benson and Darrow 1981).

In some areas, when the ground cover decreased, the topsoil was lost. Eventually the land could no longer support a grassland community (Branson 1985). Thus the damaged shrubland in some parts of the region may be permanent. Fire exclusion is an important factor in the areas that were invaded by woody species. Woody species are continuing to invade areas protected from grazing (Humphrey and Mehrhoff 1958). Others, however, discount the importance of fire, particularly in maintaining brush-free and practically fire-free rangeland in southern New Mexico (Buffington and Herbel 1965).

Hastings and Turner (1965) made a case for climatic trends toward warmer and drier conditions, combined with historic overgrazing, as a cause of vegetation changes in this region, but this theory is not universally accepted (Wright 1980). Other studies have documented that certain woody species such as burroweed are highly responsive to short-term climatic trends and that such natural causes by themselves can be responsible for dramatic shifts from grasses to shrubs (Martin and Turner 1977). Wright (1980) concluded that in this region, except in black grama uplands, occasional fires in combination with drought, competition, rodents, and lagomorphs (rabbits and hares), played a significant role in controlling shrubs.

Studies by McCormick and Galt (1993) found that perennial grass cover significantly increased on shrubsteppe rangelands in New Mexico between 1952 and 1992. Their average transect showed that perennial grass cover increased from 12 percent in 1952 to 30 percent in 1992, a remarkable finding considering that the 1950s drought, which did not end until 1955, killed most of the perennial grass cover that existed in 1952. McCormick and Galt attributed the reduction in bare ground and improvement in conditions to a combination of favorable rainfall years in the 1980s, increased water developments, conservative livestock stocking rates, and improved livestock distribution due to more fences.

Most watershed drainages are ephemeral, flowing only during periods of extreme precipitation. Permanent streams depend on water from higher elevation watersheds or large groundwater systems. Places that have no river systems have seeps, springs, and wells as permanent water sources. Other pondlike water sources, natural or artificial, form from occasional precipitation.

#### **CHAPARRAL-MOUNTAIN SHRUB**



The chaparral-mountain shrub vegetation type discontinuously occupies foothills, mountain slopes, and canyon habitats ranging from southern Oregon to the Mexican border, and from sea level to more than 5,000 feet. Composites of interior chaparral and mountain shrub communities, chaparral-mountain shrub communities typically consist of dense to moderately open stands of evergreen shrubs that grow to roughly uniform height. Most chaparral shrubs are deep rooted, sprout readily from the root crown, and regenerate quickly after burning (Brown 1982).

Shrub live oak is a common dominant of the interior chaparral. Associated shrubs include manzanita, mountain mahogany; yellowleaf silktassel; sumac; hollyleaf buckthorn; chamise; red shank; and several sophora, ceanothus, and other oak species. Important grasses include sideoats and hairy grama, cane bluestem, plains lovegrass, threeawns, and wolftail. These grasses are largely confined to recently burned areas and rocky, protected sites. Forbs are not particularly abundant except during brief periods after burns (Brown 1982).

Shrub densities in some areas of interior chaparral have increased since the turn of the century. Reduced fire frequency is usually considered the main cause of this trend (Brown 1982; Herbel 1985). Significant changes in vegetation are not well documented for the mountain shrub type. Past livestock grazing generally depleted palatable herbaceous components (Brown 1982), and fire frequency has declined. Excluding fire has contributed to decadent stands of shrubs that have lost most of their value as wildlife browse.

Surface water is limited in the chaparral-mountain shrub community. Precipitation often falls in thunderstorms. Despite the high runoff and flash flooding in ephemeral washes caused by the slope of chaparral-mountain shrub lands, the dense vegetation of deciduous and evergreen trees and understory brush reduces erosion. The headwaters of surface water streams are typically in the mountains near this community.

The chaparral-mountain shrub is the most widely scattered vegetation community in the West. Because it falls within the mid-elevation montane, many animals may descend or ascend during winter or summer to this community to graze. Openings in chaparral-mountain shrub communities can create an abundance of herbaceous and shrubby forage for several years. But overgrazing reduces the number of desirable herbaceous and browse plants, increasing unpalatable shrubs, decreasing ground cover, and increasing erosion in steep areas. Overgrazed areas may be classified as nonfunctioning or functioning but subject to degradation.

#### **PINYON-JUNIPER**



The pinyon-juniper vegetation type grows at midelevations on mountain slopes within and next to the Great Basin. Pinyon-juniper is a cold-adapted evergreen woodland with the unequal dominance of two conifers, juniper and pinyon pine.

The pinyon-juniper woodland reaches its greatest development on mesas, plateaus, slopes, and ridges from 3,200 to 8,400 feet (Blackburn and Tueller 1970; Evans 1988). Precipitation ranges from 10 to 25 inches annually (Blackburn and Tueller 1970).

The eastern woodlands receive more summer precipitation than western areas, where most precipitation falls during the winter as snow (Brown 1982). The trees are rarely taller than 36 feet and may present a closed canopy of one or a variety of kinds of trees without scanty understory vegetation. Or the community may appear as an open stand of scattered trees with a diverse and well-developed understory. Pinyon-juniper communities survive on a wide variety of soils, ranging from shallow to moderately deep and from coarse and rocky to fine compacted clays.

Typically, juniper grows in pure stands at lower elevations of the zone. Growing in mixed woodlands at middle elevations, pinyon eventually replaces juniper at the upper limits of the zone (Cronquist and others 1972). The woodlands have a variety of trees, shrubs, geographic features, and herbaceous understories.

Rocky Mountain juniper, Utah juniper, and oneseed juniper often grow together (Cronquist and others 1972). In the dry mountains of southern New Mexico and below the Mogollon Rim in Arizona, Rocky Mountain and Utah juniper and doubleleaf pinyon disappear, and alligator juniper (a sprouting variation of juniper), Emory oak, gray oak, and Mexican pinyon appear (Brown 1982). The associated understory of shrubs, grasses, and forbs in juniper communities commonly consists of a variety of vegetation from sites near woodland communities.

The correlation between pinyon-juniper and soil properties, climate, or topography highly varies. Pinyon and juniper can become dominant wherever their moisture and temperature requirements are met (Brackley 1987). The rangeland of the pinyon-juniper community types overlaps that of many other vegetation types, including sagebrush, semidesert and plains grassland, mountain shrub, and ponderosa pine (West and Van Pelt 1987).

Fires, believed to have been widespread in most pinyon-juniper communities before European settlement, limited the production of the plants, (Burkhardt and Tisdale 1976; Brackley 1987; Branson 1985; Leonard and others 1987; West and Van Pelt 1987; Tausch and others 1981; Wright 1990) particularly where pinyon-juniper merged into other communities with more fire-tolerant plants.

Wright (1990) stated, "Historically, fire has been the dominant force controlling the distribution of pinyon-juniper, particularly juniper, but fire cannot be separated from the effects of drought and grazing."

Droughts and competition from grass probably slowed the invasion of juniper into adjacent shrublands, particularly at lower elevations. Because young pinyon and juniper trees are easily killed by fire, occasional fires would kill most trees established in an area. West and Van Pelt (1987) believe that many pinyon-juniper sites used to cycle between grass-shrub domination, and pinyon-juniper communities, with fire as the chief driving factor. Surviving stands of pinyon and juniper, such as in the upper Rio Grande River drainage, are in fire resistant areas (Branson 1985). Pinyon-juniper communities may be in areas with rough topography or poor soils that haven't produced enough fuel to carry a fire (Wright and others 1979).

During settlement, livestock grazing significantly reduced the number of fuel fires. The area had fewer fires, and the range and density of pinyon and juniper increased (Burkhardt and Tisdale 1976; Branson 1985; Tausch and others 1981; Wright 1990). Opposing views state that pinyon and juniper are merely reestablishing themselves where they were removed from the 1800s to the 1920s for use in mining and for charcoal, fuelwood, fenceposts, and other uses (Lanner 1977).

The pinyon-juniper community appears to be expanding in the West. The cause of the expansion is not understood. Mehringer and Wigand (1987) argue that the rate and degree of expansion in juniper communities in central Oregon is the same as during other periods within the past 10,000 years and that climate--not grazing or fire exclusion--is the cause. Davis (1987) believes that pinyon and juniper expanded to lower elevations in response to climatic cooling but that the expansion was accelerated by past vegetation disturbances, particularly grazing.

Tausch and others (1981) studied pinyon and juniper age and dominance on 18 mountain ranges in the Great Basin and found many stands of trees to predate the historic period. They found tree dominance to be increasing, particularly at lower elevations. About 30 percent of their plots contained trees that established between 1845 to 1895. They acknowledge the role of grazing, reduced fire frequency, and revegetation of denuded areas as important in explaining present pinyon and juniper expansion. No juniper trees were found to predate 1880 in a study area in north-central Oregon.

Many of the oldest trees established under sagebrush that has since died, whereas younger trees establish under the canopy of other junipers (Eddleman 1987). The junipers continue to significantly lose understory vegetation (Tausch and others 1981;

Brackley 1987; Eddleman 1987; West and Van Pelt 1987), which would normally provide food for livestock and wildlife. In the early successional stages of pinyon-juniper encroachment into an area, livestock management may be used to create a herbaceous plant cover dense enough to restrict conifers germination, further reducing pinyon-juniper regeneration (Bedell 1986).

Few pinyon-juniper areas support a good grass understory. Once established, pinyon-juniper ecosystems are described as the climatic climax dominants (West and others 1979). Eliminating livestock grazing once trees are established would not alter the successional pattern (Doughty 1986). Only practices such as prescribed fire and mechanical and chemical treatment will allow biodiversity to return to pinyon-juniper woodlands (Doughty 1987).

Runoff from pinyon-juniper communities can be extreme, resulting in deeply incised channels and large sediment supplies to downstream areas. But gully erosion is often limited by the shallow depth to bedrock.

Annual water yield is generally less than 1 inch although wetter sites may approach 3 inches (Hibbert 1979). Streamflow is mostly intermittent and ephemeral.

Water quality is generally poor because of high dissolved solids, sediment, and temperature. Use of the water is therefore limited to wildlife and livestock drinking water.

Past management practices has significantly changed the density of pinyon and juniper tree stands. Stand densities have increased, often to the detriment of valuable forage and cover plants, lowering the quality of some wildlife habitat. This effect has resulted in a more monotypic vegetation structure. Management is often aimed at reducing tree densities to improve associated grass and forb forage plants volumes and to recreate the lost edge habitat and habitat diversity. Dense juniper stands mainly offer high-quality nesting and thermal cover. Pinyon stands may have similar values, but in addition produce pinyon nuts, which are an excellent wildlife food.

Composition and cover of the understory grasses and forbs are critical to the values of this vegetation type as quality wildlife habitat. Less valuable as wildlife habitat are areas lacking understory grasses and forbs due to stand density or other factors and areas with extensive bare ground promoting erosion.

#### **MOUNTAIN AND PLATEAU GRASSLANDS**

The mountain and plateau grasslands are located on noncontiguous areas at moderate to high elevations (3,000 to more than 9,000

feet) in the West. These grasslands often occur within a vegetation mosaic created by the complex environment of the Rocky Mountains. The grasslands ecosystem gets from 8 to 30 inches of precipitation annually (Garrison and others 1977; Mueggler and Stewart 1980), at least half of it usually falling during the growing season. The topography of mountain and plateau grasslands ranges from level areas or valley floors to alluvial benches and foothills or steep mountain slopes. The area's soil characteristics range from deep and loamy to poorly drained or fairly dry and rocky or mildly alkaline to mildly acidic (Mueggler and Stewart 1980).

In mountain and plateau grasslands, grass is usually the dominant vegetation, followed by forbs and shrubs. Important grasses in mountain and plateau grasslands include grama grasses, bromes, bluegrasses, oatgrasses, sedges, wheatgrasses, fescues, needlegrasses, and Junegrass. Diverse throughout the region, the forb component varies with site, latitude, and management. Shrubs include fringed sagebrush, rabbitbrushes, snakeweed, shrubby cinquefoils, wild roses, and horsebrush (Mueggler and Stewart 1980). Water yield in this vegetation type is low, resulting in intermittent streamflow.

These grasslands contains many different wildlife habitats, from high mountain meadows to southern plateau grasslands. Also included in this variety are the edges of grassland communities with many forest and brushland types.

#### **PLAINS GRASSLANDS**

The plains grasslands vegetation type is found in the Great Plains, stretching from eastern Montana, North Dakota, and western Minnesota southward to eastern New Mexico and Texas. The western half of the plains grasslands forms a broad, flat belt of land sloping gradually eastward from the foothills of the Rocky Mountains. Mixed and shortgrass communities are most commonly found on federal lands within this vegetation type.

The short grassland communities stretch from southeast New Mexico through eastern Colorado to southeast Wyoming. Annual precipitation ranges from 11 to 20 inches, and elevations range from 6,000 feet on the western edge to 3,000 feet on the southern edge. Dominant grasses are buffalograss and blue grama, with smaller amounts of threeawns, lovegrass, tridens, sand dropseed, sideoats grama, tobosa, galleta, vine mesquite, and bush muhly. Forbs are seldom a major component, except during wet years. Dominant woody plants include honey mesquite, shinnery oak, sand sagebrush, snakeweed, yucca, fourwing saltbush, cholla, and prickly pear.

The mixed grass communities stretch from northeast Wyoming through North and South Dakota and eastern Montana.



Precipitation varies from 20 to 28 inches, increasing from west to east. Elevation ranges from about 3,000 feet at the western edge to 900 feet in Texas (Wright and Bailey 1980). Sedges and cool-season grasses, such as needlegrasses, wheatgrasses, and fescues, dominate the communities of Montana and North and South Dakota. Warm season grasses, particularly blue grama, also grow in mixed grass communities and increase in dominance to the south.

Other important grasses in mixed grass communities include green needlegrass, prairie sandreed, needle-and-thread grass, junegrass, sand dropseed, buffalograss, sideoats grama, threeawns, silver beardgrass, sand bluestem, little bluestem, plains lovegrass, and vine mesquite (Brown 1982). Shrubs found in mixed grass communities include juniper, sand sagebrush, silver buffaloberry, sumac, wild rose, and rabbitbrushes, yucca, snakeweed, cholla, and winterfat. (Brown 1982; Mueggler and Stewart 1980). Forbs may be an important component of mixed grass communities. Common plants include goldeneye, groundsel, sunflowers, primrose, globemallow, asters, scurf pea, coneflower, and bricklebrush (Brown 1982).

Tall grass communities in the plains grassland are restricted to certain soil types and areas where grazing has not been severe. This type is more extensive in the true prairie of the Midwest. Tall grass communities are dominated by big bluestem, little bluestem, Indian grass, switchgrass, and sideoats grama. Associated shrubs include shinnery oak, sandsage, yucca, and mesquite (Brown 1985).

The plains grasslands evolved and adapted to grazing, especially by native herbivores. Scientists believe plains grasslands are mostly controlled by climate. Nevertheless, occasional fires limited woody vegetation to mosaics or a savanna situation (Wright and Bailey 1980). Fire suppression established fire disclimax associations of shrubs in some areas (Brown 1982). Unlike other native grasslands, plains grasslands generally have not been converted by fire suppression and other human activities.

Blue grama-dominated communities in the plains grasslands apparently represent stable states resistant to change caused by heavier grazing, reduced grazing, or removal of grazing (Laycock 1991). In eastern Montana, dense clubmoss occupies low-condition sites dominated by blue grama, further reducing the rate of succession (BLM 1981a).

Several changes can cause an ecosystem to move from one stable state to another (Laycock 1991). For example, although changes in grazing practices, such as a change from season-long use to rest-rotation grazing or even removal of grazing, may not result in succession from mid- to late-seral stages on dense blue grama



and clubmoss sites, rapid successional change can result from introducing fire or mechanically disturbing the site. In most of the prairie ecosystem, a reduction in fire frequency for the past 100 years due to fire control is likely a major factor in perpetuating stable low successional states. Lack of disturbance of the soil surface is also a major factor.

Buffalo herds once grazed the plains grasslands, repeatedly disturbing the surface. Large herds would create an effect like shallow plowing. In eastern Montana, mechanical disturbance of the soil surface similar to the hoof action of the buffalo by chisel plowing rapidly changes vegetation from mid- to late-seral stages (BLM 1981a). Cattle grazing methods designed to cause herd impact through short-duration, high-intensity grazing (Savory 1988) are being applied with success on several ranches in the region, but data on successional change is lacking. Applying such disturbance factors as fire, mechanical treatments, or possibly high-intensity, short-duration grazing will be the key to changes in successional stages on the plains grassland.

The plains grassland included in the Rocky Mountains and High Plains analysis area includes the northern mixed prairie and the shortgrass prairie. Both types highly resist grazing, recovering from overgrazing within 3 to 10 years (Holechek and others 1989). Rangeland managers regulate four basic factors in controlling the effects of animals on plants: grazing intensity, timing, frequency, and selective plant consumption.

Grazing intensity has been shown to be the most important factor. In general, the mid grasses (western wheatgrass) resist grazing less than shortgrasses (blue grama), so use levels must be keyed to mid grasses to maintain or increase their composition in the plant community. For maintenance of good condition, a use rate of 40 to 50 percent is recommended, with lower use recommended for rangelands in poor condition (Holechek and others 1989). Under moderate use, several grazing systems can be used to manage the timing, frequency, and selectivity of grazing to effectively maintain or improve conditions. Rest-rotation grazing has multiple use benefits because ungrazed pastures can be used by wildlife and for other purposes.

Most upland sites with deep soils in the plains grasslands have a low erosion hazard under moderate or even heavy grazing because of the amount of ground cover they produce. The areas most susceptible to erosion are the shallow soils with limited ground cover. Functioning at risk or nonfunctioning, the shallow clay badlands are being shaped by the natural forces of erosion. Without adequate ground cover, livestock grazing would result in accelerated erosion.

#### **ANNUAL GRASSLANDS**

Annual grasslands occur in California, especially on small plains and gently rolling hills scattered throughout southern California, the Central Valley, and in the coastal mountains as far north as Humboldt County. Annual grasslands grow at elevations ranging from sea level to 4,000 feet. Relicts of the pristine California prairie are found within small parcels of annual grasslands.

Consisting mainly of annual plants, annual grasslands are open and often develop as the understory to parts of other ecosystems. Fall rains cause the germination of annual grassland plants that grow slowly during winter, then grow rapidly in the spring as temperatures rise. Large amounts of standing dead material can be found in the summer in years of abundant rainfall and light grazing. Heavy spring grazing favors the growth of summer-annual forbs such as tarweed and turkey mullen and reduces standing dead material. On good sites, herbage yield may be as high as 4,400 pounds per acre (Garrison and others 1977).

Dominating annual grasslands are such introduced annual grasses as wild oats, soft chess, ripgut brome, red brome, wild barley, and foxtail fescue. Common forbs include redstem filaree, broadstem filaree, turkey mullen, true clovers, and burr clover. Perennial grasses that are found in moist, lightly grazed or relict areas include Idaho fescue and purple needlegrass.

The lower elevations of the annual grassland ecosystem are irrigated and make rich farm land. The upper elevations are grazed. Lands near urban areas also receive heavy recreational use.

With the exception of the Tulare Lake Basin in the south, streams drain the annual grasslands through the delta and out to San Francisco Bay. Surface waters are abundant. The Sacramento and San Joaquin are the region's main rivers. Both flow into the delta. Surface water is used mainly for agriculture and urban purposes. The California annual grassland ecosystem is now an intensive agricultural region with productive soils, gentle slopes, and a long growing season.

Livestock grazing favors the development of low-growing, early spring maturing forbs and summer annuals. Without grazing, the annual grass rangeland is often dominated by dense stands of grasses such as ripgut brome and wild oats.

Loss of most of California's annual grassland to farming and development makes the remaining portions of federal land important for maintaining wildlife habitat. BLM's California offices are actively conserving annual grasslands whenever possible.

#### **ALPINE GRASSLANDS**

Beginning at the upper limits of tree growth, alpine grasslands extend upward to the exposed rocks of mountain tops. At the lower border of these grasslands shrubby trees form a transition zone above coniferous forests. Alpine communities have similar combinations of vegetation throughout, including phlox, clovers, alpine avens, yarrow, alpine sedge, alpine bluegrass, elk sedge, spikerush, and tufted hairgrass. The willow communities typically consist of alpine willow, barrenground willow, tealeaf willow, and snow willow. Alpine meadow communities grow on sheltered benches, slopes, and level areas where soils are well developed. Alpine marshes replace ponds or develop wherever springs and melting snowbanks contribute to a continuously moist habitat. Glaciation created open landscapes, cirques, hanging terraces, and moraines in alpine areas.

Alpine hydrology is dominated by the amount, distribution, and melting of snow. The annual water yield amounts to 75 percent or more of the annual precipitation (Johnston and Brown 1979). Streamflow is mostly perennial.

#### CONIFEROUS AND DECIDUOUS FORESTS

Coniferous and deciduous forests grow in the Rocky Mountains; the Sierra Nevada; the Cascade Range; and the mountains of the upper and lower Basin and Range Provinces, the Colorado Plateau, and the Columbia Plateau. Species dominance varies by altitude, latitude, slope, aspect or other topographical position, soil characteristics, and climatic regime. Important forest communities associated with western rangelands include ponderosa pine, Douglas-fir, aspen, lodgepole pine, hemlock-spruce, cedar-hemlock, spruce-fir, redwood, and western hardwood.

Climax ponderosa pine grows at lower elevations and on warmer, drier sites within coniferous and deciduous forests, typically having lower boundaries with pinyon-juniper woodlands or chaparral-mountain shrub communities and upper boundaries with mixed conifers. Ponderosa pine is the largest western forest. Old-growth ponderosa forests are often park-like, having old trees interspersed within groups of young trees and a well-developed herbaceous understory. Older trees tolerate fire better than young trees, which are easily killed (Daubenmire 1952). Small fires that burned through the understory are no longer common, which is probably the reason for today's dense and stagnant stands and understory thickets (Wright and Bailey 1982).

Often grazed, ponderosa pine communities can provide a large variety of forage for livestock and wildlife, including winter and fall transitory big game habitat. These forests produce an average of 500-600 pounds of grass forage per acre in open stands, but less forage with crown closure.

Douglas-fir communities are found from the northern portion of the California Coast Range, through Oregon and Washington, and throughout the Rocky Mountains, generally between the ponderosa pine and spruce-fir communities (Wright and Bailey 1982).

Douglas-fir is more often mixed with other conifers in the southern Rockies. This mixed conifer zone is dominated by Douglas-fir in association with ponderosa pine, white fir, blue spruce, and Englemann spruce. Mature mixed-conifer forests are often dense, with high litter accumulations that inhibit understory growth (Brown 1982). This type may extend into drier areas, following canyons, ravines, and north-facing slopes, existing as islands in the midst of more xerophytic vegetation (Daubenmire 1952).

Ungulates typically confine their use of Douglas-fir communities to disturbed areas, where fire or logging has reduced the overstory. These disturbed lands produce from 1,000 to 3,000 pounds of grass forage per acre, as opposed to 50 to 150 pounds per acre on undisturbed sites.

With a range coinciding closely with Douglas-fir, quaking aspen is the most widely distributed native North American tree. It may form extensive pure stands or be a minor component of other forest types. The aspen is a clonal species with an extensive root system that gives rise to shoots forming new trees genetically identical to the parent. The clone consists of all the genetically identical stems. An aspen stand may consist of one or many clones, which may persist for thousands of years.

Fire is responsible for the abundance and even-aged structure of most aspen stands in the West. Without human intervention, fire appears to be needed for the continued well-being of aspen on most sites. Most stands will die out or be replaced by conifers without disturbance (DeByle and Winokur 1985). In many areas aspen stands are declining in acreage and vigor. Many believe that this decline resulted from past fire control and overgrazing of sprouts by elk and livestock.

Lodgepole pine grows mainly in the central and northern Rocky Mountain of Colorado, Wyoming, Montana, Utah, Idaho, and Oregon. It is also found in the higher mountains of southern California.

Lodgepole pine tends to dominate its communities, often forming dense, pure stands with little understory. Occasional associates include aspen, Douglas-fir, ponderosa pine, and mountain hemlock. The amount of understory is weakly associated with overstory density (Bartolome 1983). The understory can vary from being virtually absent to a rich herbaceous layer next to meadow edges. Often invading riparian habitats, lodgepole pine can have a substantial understory of bitterbrush, Idaho fescue, needlegrass, oatgrass, and wildryes. The amount and quality of forage growing



in these forests vary by successional stages. Fire plays an important role in the origin and maintenance of lodgepole pine forests.

Cedar-hemlock forests grow in northern Idaho and northwest Montana where the westerly winds carry oceanic influence as far inland as the Continental Divide. Douglas-fir and western white pine are common associates. Understory in this zone is a rich growth of shrubs and herbs (Wright and Bailey 1982).

Hemlock-spruce communities extend south from British Columbia along the Washington and Oregon coasts and a portion of the Cascade Mountains in Washington. Elevations range from 200 to 4,000 feet. The dominant species are Sitka spruce and western hemlock. Western red cedar, Douglas-fir, and grand fir may also be present to a lesser degree. Common understory plants include vine maple, red whortleberry, Cascades mohonia, twin flower, California dewberry, coast rhododendron, holly fern, and cutleaf fern. The dense overstory reduces forage production.

The spruce-fir community has open to dense evergreen forests and patches of shrubby undergrowth with scattered herbs. Composition of the overstory varies widely but is usually dominated by some combination of red fir, Englemann spruce, subalpine fir, mountain hemlock, white bark pine, western white pine, lodgepole pine, foxtail pine, limber pine, and bristlecone pine.

Spruce-fir communities often form dense stands and deficient herbaceous understories because of shading and considerable litter accumulation. Thus, spruce-fir communities are poor sources of forage. Most forage is confined to meadows and natural parks within the forest matrix. Large clearcut blocks within the red fir component can produce from 600 to 1,000 pounds of forage per acre. Aspen often becomes dominant after fire or other disturbances.

The redwood community is a composite name for a variety of mixed conifers that grow within the coastal influence: Sitka spruce, grand fir, redwood, Douglas-fir, and red alder. The redwood community is restricted to the coastal areas of California and southern Oregon. Redwood communities can be grazed. The diverse understory vegetation includes many shrubs, forbs, ferns, and grasses.

Western hardwood communities, sometimes called oak woodlands, grow in California and the western interior valleys of Oregon, especially the foothills surrounding the Central Valley and coastal rangelands in California and the Willamette, Umpqua, and Rogue River valleys in Oregon. Trees in these communities include Oregon white oak, Coulter pine, digger pine, coast live oak, blue oak, valley oak, and interior live oak. Douglas-fir, bigleaf maple, and grand fir may be present. Western hardwoods



are major components in a mosaic of valley grassland, chaparral, strips of riparian forests, and other vegetation.

Western hardwood communities have mostly hardwood species in their overstories. Understory vegetation varies by location. The dominant species include poison oak, snowberry, service berry, blackberry, wild oats, bromes, bluegrass, ryegrass, and needlegrass. In open areas, western hardwood communities grow forage associated with valley grassland and are often grazed by livestock.

Streamflow in western hardwood communities is mostly perennial. Water quality in most cases is good. Regulated by the solubility of the geologic formations, typical total dissolved solids are below 100 milligrams/liter. Temperature and dissolved oxygen are suitable for cold water fisheries where topographic and vegetation shading control solar radiation.

Water is abundant in this ecosystem. All of the larger streams and rivers flowing through this ecosystem originate in the mountains. Natural lakes are common, and many large and deep reservoirs have been built on major rivers to provide water for irrigation, power, and domestic and municipal uses. Most natural lakes and ponds are relatively shallow and rich in organic matter. Reservoirs are typically deeper and colder and are relatively nutrient poor. The mountainous terrain and the heavy rainfall associated with this ecosystem have formed complex stream systems. Erosional segments are often confined by the valley walls, and as a result, streamside vegetation is limited to conifers and whatever wetland vegetation can exist in the limited soil. Depositional segments often provide highly productive wetland vegetation.

#### UPLAND CONDITIONS AND TRENDS

The Taylor Grazing Act was passed in 1934 as a result of rangelands being deteriorated during the late 1800s and early 1900s. Changing lifestyles, economic factors, and a more environmentally conscious society have since led to a heightened public concern about the management of federal rangelands. Attitudes toward federal rangelands were reflected in passage of the Federal Land Policy and Management Act in 1976. Further concern about the deteriorated condition of federal rangelands led to passage of the Public Rangelands Improvement Act in 1978. Today, the issue is whether the agencies' stewardship of federal rangelands is adequate to restore and maintain the health of rangeland ecosystems.

Federal rangeland conditions have been reported in a variety of ways over the years. Rangeland assessments today are based more on ecological condition ratings than on forage suitability ratings for livestock. Ecological conditions are typically

measured by comparing percent composition, by weight and species, of the existing vegetation to the potential natural plant community that the area can produce.

A community is considered to be at its natural potential when the existing vegetation is between 75 and 100 percent of the site's potential natural plant community. A community in a late seral stage would be between 50 and 74 percent of a site's potential plant community, mid-seral between 25 and 49 percent, and early seral between 0 to 24 percent of the potential plant community.

In the past, seral stages were referred to as excellent, good, fair, and poor condition. This reference has caused problems for land management agencies using this method. During the 1970s and 1980s both agencies were sending the message that they wanted to manage the public lands for good and excellent condition uplands. The problem was that management objectives for all resources are seldom met in an ecosystem in its potential natural condition. Wildlife, for instance, occupy different habitats depending on habitat needs at specific seasons of the year. All wildlife need areas for foraging and areas for protection and cover. These areas may not be potential natural communities.

Ideally, an ecosystem with a variety of seral stages offers the diversity of habitats needed by a diversity of wildlife. Managing for only one seral stage in an ecosystem will limit the diversity of the wildlife and harm the ecosystem's health and biodiversity by restricting the diversity of all species of insects, birds, and mammals. In short, the more seral stages represented in an ecosystem the more the plant and animal species and the greater the biodiversity of the ecosystem. However, as a result of past disturbances and human intervention, some ecosystems have been altered to a point that one seral stage is reduced to undesirably low levels. These cases can lead to listing of species as threatened or endangered and create highly controversial management problems such as the old growth forest issues in the Pacific Northwest. As BLM and the Forest Service move into an ecosystem approach to managing federal lands, biodiversity and ecosystem health, including restoration of degraded areas or seral stages in short supply, will become high priorities in developing management objectives.

Trend represents the number of acres of uplands that are moving toward management objectives (upward), that are not moving anywhere or have reached objectives (static), and that are moving away from objectives (downward). Trend and condition data are complicated by variations in precipitation zones, yearly precipitation, other climate factors, and timing of inventories. During years of long droughts, studies may show a downward trend and undesirable conditions because of drought--not because of present management. Grass and forb production may be low, but shrub production may be normal. Years with abundant

precipitation show the opposite results of droughts since the composition by weight of plants, especially of grasses and forbs, is affected by moisture. In wetter years, grass and forb production is greater than shrub production, and studies may show an upward trend and more desirable conditions.

Past improvements in rangeland condition have been largely attributed to management prescriptions that guide grazing use levels; establish proper seasons of use; and recognize and lead to installing proper rangeland improvements, land treatments, and management facilities. The main improvement, however, has largely been in the condition of uplands. In many instances, such upland improvement has not carried over to riparian-wetland areas. Since the mid-1980s, improvement in upland rangeland conditions has tended to level off.

The evolution of rangeland management principles and concepts, changing statutory mandates, and the changing values and expectations of society, demand a new philosophy and approach for assessing rangeland condition. Congress recognized that need and directed the agencies to report, on a continuing basis, the relationship of existing plant communities to resource management plan objectives. This requirement is being met by BLM via a methodology known as the ecological site inventory (ESI), and by the Forest Service reporting acres meeting, moving toward, or not meeting forest plan objectives.

The ESI provides essential resource information (ecological condition, site capability and potential, and surface soil conditions) needed to rate existing vegetation communities in two important ways: (1) in relation to the potential natural community for a particular ecological site and (2) in relation to resource objectives stated in RMPs. BLM's policy is that both forms of evaluation must be kept current and regularly reported.

Inventories are conducted to complete data gaps and update older inventories. Vegetation resource objectives are set for each allotment, and livestock and wildlife use is monitored to ensure proper use of key forage species.

The ecological status of federal land administered by BLM, in millions of acres, is as follows:

POTENTIAL NATURAL COMMUNITY	3.3	
LATE SERAL	27.8	
MID SERAL	32.7	
EARLY SERAL	12.3	
UNKNOWN/UNCLASSIFIED <sup>1</sup>	5.7	5.7

<sup>1</sup> On unknown and unclassified acres either ecological condition has not been determined or vegetation is lacking, such as rock outcrop.

Similar data is used to show changes or trends in the condition of rangeland vegetation. Usually every 2 to 5 years, depending on schedules and local resource objectives, permanent vegetation plots are analyzed and evaluated. Frequency of new plants, plant composition, bare ground, rocks, and litter are observed and used to determine the vegetation's condition.

Plants highly respond to the timing of rainfall, other climatic factors, and grazing. Grazing is more subtle in its effect on plants. Moderate grazing is less likely to affect vegetation over the long term than continuous heavy grazing, which may reduce the vegetation's vigor, size, and yield.

The present trend in vegetation for federal land administered by BLM is based on agency studies or staff professional judgment. The following information shows national vegetation trends (in millions of acres):

UP	28.4
STATIC	91.8
DOWN	16.6
UNDETERMINED	22.1

Proper functioning is the lowest condition needed to ensure ecological health and condition while allowing livestock grazing. BLM and the Forest Service are responsible for managing sustainable, healthy, productive ecosystems to meet the America's environmental, social, economic, aesthetic, and cultural needs. Sustainable ecosystems provide biodiversity, habitat for fish and wildlife, clean drinking water for communities, and healthy and productive federal rangelands.

The watershed is one major landscape management unit having biological, social, economic, and other values. The measurable and manageable components of watersheds equate to elements of ecosystem function, including water cycle, energy balance, and biological diversity. Watersheds consist of interdependent aquatic, riparian, wetland, and upland components that, when functioning properly, capture, store, and safely release moisture; support biological diversity; and help meet social and economic needs.

Uplands are commonly the largest area of the watershed. Hence, the condition of uplands affects the overall health and functioning of rangeland ecosystems. The functioning condition of uplands is a result of the interaction of earth, soils, climates, water, biological activities, fire, and landforms. When uplands



are properly functioning, their vegetation and ground cover maintain soil that can sustain natural biotic communities.

But in uplands that are functioning but susceptible to degradation livestock grazing or some other activity has threatened the soil's capability to sustain natural biotic communities. Furthermore, if uplands are not functioning properly, the vegetation and ground cover are not maintaining soil conditions that can sustain natural biotic communities. (See Glossary.)

Although good data exist on seral stage and ecological trend, the concept of proper functioning condition of uplands is relatively new, and little quantitative data exist. Work will be done to define and assess the functioning condition of uplands. To achieve desired resource conditions even more work must be done, such as defining the biological communities that are required to achieve the goals and objectives of land use plans.

Nevertheless, the following estimates have been provided to help facilitate the analyses of BLM-administered uplands discussed in this EIS: 90.5 million acres of uplands are properly functioning, 48 million acres are functioning but susceptible to degradation, and 20.5 million acres are nonfunctioning. Uplands in the unknown category have not been estimated. (These estimates were made by an interdisciplinary team of resource specialists.) The impacts on the functioning condition of uplands that would be caused by each alternative, will be measured by an expected rate of change. (See Chapter 4 for more information.)

The Forest Service establishes land management objectives, including rangeland resource objectives, in individual national forest land and resource management plans. Vegetation and other resource objectives are established in individual allotment management plans which are tiered to the forest plans.

Monitoring is a key element of the allotment management plans. Livestock and wildlife use is monitored to ensure proper use of key forage species. Long term trend plots are established based on the needs identified in the allotment management plan.

In 1992 the Forest Service implemented a new method for evaluating and reporting how rangeland activities are meeting or progressing toward the objectives established in the forest plans and allotment management plans. The following categories were established: acres meeting forest plan objectives; acres moving toward forest plan objectives; acres not meeting or moving toward forest plan objectives; and acres of undetermined status (unknown).

Approximately 73 million acres of national forest system uplands with range vegetation management objectives were classified into



one of these categories for the first time in 1992. Professional resource managers classified lands with range vegetation management objectives into the categories above using existing inventories, monitoring data, and professional judgement. The reliability of these estimates varies with the amount of data available and personal knowledge of the areas. This assessment of the present status of national forest system uplands is summarized below in millions of acres:

MEETING OR MOVING TOWARD OBJECTIVES	44.9
NOT MEETING OR MOVING TOWARD OBJECTIVES	10.9
UNDETERMINED STATUS	17.4

### **RIPARIAN**

Riparian communities develop near all kinds of vegetation. They make up the least extensive vegetation type in the 13 western states, with less than 1 percent of the total area (Cooperrider and others 1986). Riparian communities may be classified by several systems, most of which are complex and unsuitable for this type of analysis. The classification system proposed by Dick-Peddie and Hubbard (1977) is suitable for this EIS and delineates the following riparian communities:

**Alpine Riparian Subformation** is limited to riparian areas above timberline. Typical plants are shrubby willows, sedges, rushes, spike-rush, and marsh marigold. This community is probably the rarest riparian community on federal land. The alpine riparian communities are limited to mountain ranges within the sagebrush, pinyon-juniper, mountain and plateau grasslands, and coniferous and deciduous forest communities.

**Montane Riparian Subformation** contains three subseries communities: the willow-alder series, blue spruce series, and the mixed-deciduous series.

**Willow-alder series** includes several species of willow and alders, bog birch, water birch, dogwood, aspen, currant, geranium, cinquefoil, cow parsnip, and sedges. This series is most closely associated with the mountain and plateau grasslands, coniferous, and deciduous forests.

**Blue spruce series** contain the blue spruce and combinations of Douglas-fir, subalpine fir, white serviceberry, carex, grasses, and geranium. This series is also associated with the mountain and plateau grasslands, coniferous and deciduous forests, higher elevation sagebrush, chaparral and mountain shrub, and pinyon-juniper communities.

**Mixed-deciduous series** include a variety of communities of willow-dogwood; alder-willow; boxelder-ash-walnut; sycamore; and hackberry, junipers, ash, western oaks, cottonwoods, maple, and

others. Found in all analysis areas, this series includes a wide variety of understory vegetation.

**Arroyo-Floodplain Riparian Sub-Formation** contains the arroyo scrub series and the floodplain (bosque) series.

**Arroyo series** grow only in the driest riparian situations, generally with only seasonal flooding. Most plants in riparian areas are also found in the uplands but reach a larger size in the drainages because of the presence of flood or subsurface water. Growing in this series are the greasewood, rabbitbrush, desert willow-bricklebush, and the burweed-four-winged saltbush associations. Big sagebrush, seepwillow, desert broom, arrowweed, and the nonnative saltcedar are also found within the arroyo series. These plants mainly grow in the sagebrush, desert shrub, and southwest shrubsteppe communities.

**Floodplain (bosque) series** includes the cottonwood, cottonwood-willow, mesquite, arrowweed-seepwillow, mixed bosque, and saltcedar associations. The floodplain series covers wide areas that support a variety of subordinate understory vegetation. The cottonwood-willow association grows in most analysis areas. Saltcedar, a rapidly spreading exotic, grows in most analysis areas except for the coniferous or deciduous communities. The mesquite, arrowweed-seepwillow, and mixed bosque associations grow mainly in desert shrub and southwest shrubsteppe communities.

In the eastern portions of the plains grassland zone, riparian vegetation adopts some of the characteristics of upland deciduous forests. In Oklahoma, riparian trees decrease in height and vigor in the transition from the moist East to the arid West. In the East, baldcypress, sweetgum, sycamore, river birch, and black gum are common. Elms, hackberry, walnut, black locust, and honey locust are dominant in the central region, but are secondary trees in the East. In the West, cottonwood, willow, elm, and boxelder are common but are smaller and more widely spaced than in the East (Brinson and others 1981).

#### **RIPARIAN, WETLANDS, AND AQUATIC COMMUNITIES**

Because of their productivity and other values, riparian communities are critically significant and have received continuous intensive use since before European settlement (Branson 1985). Riparian communities are the most severely altered ecosystems in the U.S. (Brinson and others 1981). It is estimated that 70 to 90 percent of the natural riparian ecosystems have been lost because of human activities, and up to 80 percent of the remaining areas are in unsatisfactory condition and are dominated by human activities (Cooperrider and others 1986).

Riparian communities makes up approximately 1 percent of federal land. (See Table 3-6.)

Table 3-6: RIPARIAN VEGETATION ON FEDERAL LAND

Administrative	Acres of	Acres of	% Riparian
Bureau of Land Management	177.3 million	1.0	0.56%
USDA Forest Service	145.5 million	2.2	1.51%
<b>Totals</b>	<b>322.8 million</b>	<b>3.2</b>	<b>0.99%</b>

The most biologically diverse habitats on federal land are those associated with riparian communities. Undisturbed riparian communities provide abundant food, cover, and water for wildlife, and often contain special ecological features or a combination of features that are not often found in uplands. Consequently, riparian communities are extremely productive and the most valued vegetation zone (Dealy and others 1981; Thomas and others 1979). The importance of riparian ecosystems can be attributed to biological and physical features, including the following (Brinson and others 1981):

- ♦ Predominance of woody plant communities;
- ♦ Presence of surface water and abundant soil moisture;
- ♦ Closeness of diverse structural features (live and dead vegetation, water bodies, nonvegetated substrates), resulting in extensive edge and structurally heterogeneous wildlife habitats;
- ♦ Distribution in long corridors that provide protective pathways for wildlife migrations and movements between habitats.

Healthy riparian and wetland areas provide values and benefits far exceeding the small percentage of federal land they occupy. Benefits of proper functioning riparian communities include the following (BLM 1991b):

- ♦ improved water quality
- ♦ filtration of sediments
- ♦ streambank stability
- ♦ moderated streamflow (reduced flooding)
- ♦ retention of water extending late season flow
- ♦ restoration of perennial streamflow
- ♦ recharge of groundwater
- ♦ protection from accelerated erosion
- ♦ aggradation or maintenance of high water table
- ♦ increased recreational opportunities
- ♦ optimal habitat for fish and wildlife
- ♦ increased biological diversity
- ♦ increased forage for wildlife and livestock
- ♦ enhanced aesthetics

The wildlife group most affected by the quality of riparian habitat is the fisheries community. The quality of fisheries habitat is directly correlated to the health of the riparian community (American Fisheries Society 1980). Riparian vegetation is critical for fish because overhanging vegetation provides escape cover, lowers summer water temperatures through shading, and reduces streambank erosion, which deposits silt in spawning and rearing areas. Healthy riparian systems purify water as it moves through the vegetation by removing sediment. Healthy riparian systems also act as sponges by retaining water in streambanks and aquifers (BLM 1989).

Riparian areas are also important to bird populations. Eighty-two percent of breeding birds in northern Colorado live in riparian areas, and 51 percent of all birds in the Southwest depend on these areas. Riparian areas attract a disproportionate number of migrating birds and may attract up to 10 times more kinds of birds in the spring and 14 times more birds in the fall than surrounding uplands. Other vertebrate also depend on riparian areas (Knopf and others 1988).

Riparian and wetland areas can be essential to many endangered and sensitive plants and animals, such as whooping cranes, bald eagles, merlins, and soft aster. Riparian and wetland habitats may be degraded when livestock and wildlife graze and drink in the area. Often the problem is worse when water and forage are plentiful.

While a few western riparian areas have improved since the West was settled (Branson 1985), most have declined in amount and quality. For example, the lower Colorado River historically had an estimated 5,000 acres of pure cottonwood stands along its banks. By the mid-1970s, only 500 acres remained. Riparian vegetation has been removed at nearly 3,000 acres per year (Ohmart and Anderson 1982). Riparian communities at low elevations have suffered the worst impacts, whereas mountain riparian communities have hardly changed (Brinson and others 1981). Major causes of damage include land clearing, irrigation and related water projects, and flooding under impoundments. The overall assessment of western riparian communities is similar to the nationwide assessment: less than 20 percent of 120 million acres of potential riparian habitat exists (Brinson and others 1981).

Within the scope of this EIS, two aspects of historical change in riparian vegetation are important.

- ♦ Past land use practices in livestock grazing, fire management, and timber harvest have significantly affected the status of riparian areas. Most riparian areas are in poor condition because of past management (Cooperrider and others 1986). Excessive amounts of plant biomass have been



removed from riparian areas by livestock grazing and timber harvesting for the past 100 years or more. The remaining riparian communities are often relict tree stands, unable to reproduce under existing management.

- ♦ In addition to damaging the riparian communities, past management has also degraded most of the associated upland vegetation areas, resulting in watersheds of unsatisfactory condition in addition to riparian areas in poor condition (Brinson and others 1981). The results are existing riparian areas that are only remnants of the potential natural plant community, with surrounding watersheds that are unstable and require significant changes in management before objectives of proper functioning riparian communities can be met.

If managed properly, grazing within riparian communities and along streams is compatible with other resources (Chaney and others 1990; Grette 1990; May and Davis 1981; Platts 1990). The timing, numbers, and duration of livestock use are the key factors that must be set and monitored to assure proper livestock management in healthy and degraded riparian areas (Chaney and others 1990). But livestock, especially cattle, will spend a disproportionate amount of time in riparian areas compared to uplands (GAO 1988b; Clary and Webster 1989; Platts 1990).

Livestock grazing is not prominent in the Coastal analysis area. Less than 45 percent of the federal lands in the area are grazed, which is also less than 5 percent of the forage authorized for grazing by BLM and Forest Service nationwide. Many of the special status wildlife living in the area are unaffected by livestock grazing on federal lands and were not analyzed in detail for the Rangeland Reform EIS.

Often on federal lands in the Coastal analysis area, especially the southern portion, livestock graze near or in riparian communities. The Coastal analysis area has riverine, lacustrine, and estuarine riparian communities. Waterfowl, shorebirds, heron, osprey, bald eagle, swift, Santa Cruz long-toed salamander, deer, elk, mink, and other wildlife use riparian communities in the area.

#### **RIPARIAN CONDITIONS AND TRENDS**

Riparian habitats cover about 3.2 million acres of federal land in 11 western states. Though inventories of riparian communities are incomplete, a large amount of riparian habitat that has been evaluated is known to be in a nonfunctioning condition. (See Table 3-7 and Figure 3-1.) Over the past decade land management agencies have been concentrating restoration efforts on riparian areas, which respond quickly to management changes. As a result, riparian areas that were most obvious and visible to the public

were inventoried and have generally received the most management attention. Many are recovering from past land use abuses.

Not shown in Table 3-7 are the extensive riparian areas that have been degraded to the point that they are no longer recognized as having riparian or wetland values or potential. Other obvious trends can also be noted from Table 3-7:

- ♦ Riparian communities at higher elevations that receive greater precipitation are more extensive and generally in better condition.
- ♦ Riparian resources at lower elevations, receiving less precipitation, and influenced extensively from upstream watersheds, are less extensive and generally more deteriorated. As the condition of riparian resources declines, accelerated erosion increases, incising stream channels. Water tables are lowered, resulting in historically wide floodplains being reduced to a narrow riparian community in the bottom of a wash (BLM 1993g). (See the description of grazing impacts on riparian and aquatic communities in the "Wildlife" section.)

Table 3-7: CURRENT CONDITION OF RIPARIAN AREAS BY AGENCY.

	Meeting or Moving Toward Objectives (acres)	Not Meeting Objectives (acres)	Unknown
USDA Forest Service	1,376,496	413,567	503,362
% of FS riparian acres	60	18	22

	Proper Functioning (acres)	Functioning But Susceptible to Degradation (acres)	Nonfunctioning (acres)	Unknown
BLM	155,735	219,201	88,046	565,430
% of BLM riparian acres	15	21	9	55

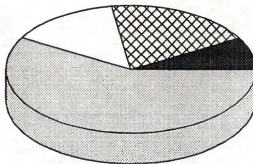
GAO (1988b) reported that federal lands managed by BLM and the Forest Service had degraded riparian communities, largely due to extensive overuse by livestock. Chaney and others (1990) reported significant improvements in rangeland condition. Improved upland conditions do not necessarily mean improved riparian habitat. In fact, extensive field observations in the late 1980's suggest that riparian areas in most of the West were in the worst condition in history (Chaney and others 1990). Platts (1990)

stated that although uplands have recovered since 1935, the condition of riverine-riparian systems has continued to decline.

In the last few years, BLM and Forest Service have improved certain riparian communities (BLM 1992b). But most federal riparian acreage is not getting this special treatment. Once a riparian community has been or is being degraded and its banks and channels are unstable, excessive use by livestock will not allow the area's vegetation to recover. Riparian areas degraded by livestock will continue to degrade through accelerated erosion until grazing management is changed. Riparian areas will not recover on a large scale without changes in policy, regulations, and management (Elmore and Beschta 1987).

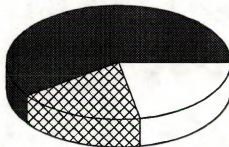
Figure 3-1

**Current Condition - BLM Riparian Areas**  
1993



■ Nonfunctioning    ▨ Functioning at Risk    □ Functioning    ▩ Unknown

**Current Condition - Forest Service  
Riparian Areas**  
1993



■ Mitg/Move to Objectives    ▨ Not Mitg Objectives    □ Unknown

## WATERSHEDS

### UPLAND SOILS

Soils in the study area are diverse, ranging from aridic soils high in sodium and soluble salts, to shallow, barren alpine soils, and deep, loamy soils of the Great Plains grasslands.

Soil development and formation are controlled by five soil-forming factors: (1) climate, in which temperature and precipitation are the most influential forces in the soil-forming process; (2) living organisms, particularly native vegetation, as well as animals and microorganisms; (3) nature of the parent material, including texture, structure, and chemical and mineralogical composition; (4) topographic location, which can quicken or delay the climatic factors; and (5) the length of time materials are subjected to weathering (Brady 1974). Each of the factors for forming soil have contributed to the formation of seven major soil orders on the western federal land (Map 3-4).

Alfisols are mineral soils that have developed in cool, moist regions, usually under a forest canopy. Having a significant accumulation of clay within the profile, they are common in the coniferous and deciduous forests at higher elevations and mountain shrub community in the coastal analysis area. Alfisols are generally productive soils that respond to changes in management.

Andisols are mineral soils with a strong volcanic ash influence. Andisols are principally found in forests. This is a new order within soil taxonomy. (See Map 3-4.) Many of the soils formally classified as Alfisols are now classified as Andisols. Andisols are productive, often erosive, and responsive to changes in management.

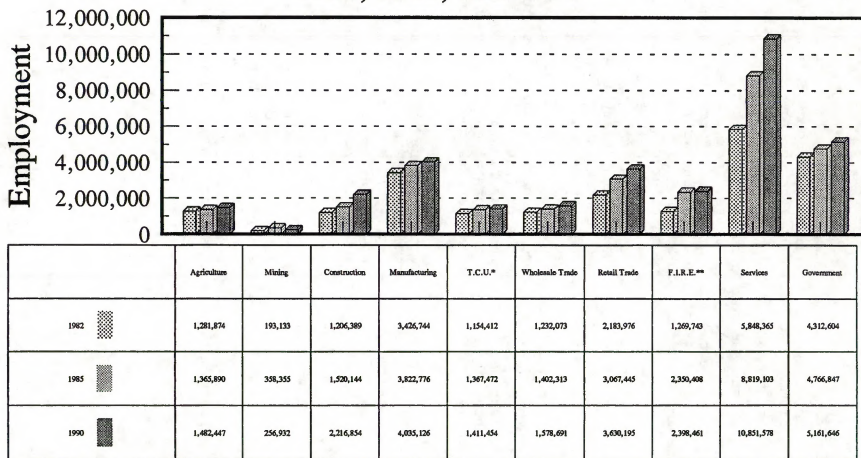
Aridisols are mineral soils that have developed in dry regions. They are light colored; low in organic matter; and may have accumulations of sodium, soluble salts, and lime. The vegetation types found on Aridisols are important contributors to the western livestock industry. Aridisols are common in the desert shrub, sagebrush, and pinyon juniper vegetation communities. Without irrigation Aridisols are not as productive as those that receive



Figure 3-4

## Western Region

### Total Employment by Industry 1982, 1985, and 1990



Source: USDA/Forest Service 1993 (IMPLAN)

\*Transportation, Communications, and Utilities

\*\*Finance, Insurance, and Real estate

more precipitation and as such, they are slower to respond to changes in management.

Entisols are mineral soils that lack profile development (soil horizons) and are often called young soils. Entisols are formed in recently deposited material. They are often found in lower elevation, arid and semiarid environments supporting desert shrub and sagebrush communities.

Inceptisols are mineral soils that have some profile development and have at least one horizon. They are also young soils but have experienced higher weathering and soil-forming processes than have Entisols. Common in the coniferous and deciduous forests, inceptisols are productive soils whenever they have adequate moisture and will respond well to changes in management.

Mollisols are mineral soils that have thick, dark-colored surface horizons rich in organic matter. They are fertile and extend from the higher mountains to the prairie grasslands where they are most abundant. Mollisol soils support the plains grassland, chaparral-mountain shrub, mountain and plateau grasslands, and coniferous-deciduous forest community types. Used extensively for livestock grazing, Mollisols are highly productive soils that respond well to management changes.

Ultisols are mineral soils associated with advanced soil development on stable geomorphic surfaces. Water moves sufficiently through Ultisols for removing bases and for forming accumulations of clay. Though normally low in bases, the soils usually support forest vegetation, which efficiently cycles and retains necessary nutrients. Ultisols mainly occur along the coastal mountain ranges of northern California and southern Oregon, and valleys between the Coast and Cascade mountains of western Oregon and Washington. Productive soils that respond well to changes in management, Ultisols are associated with Douglas-fir forests.

Soil erosion is influenced by climate, topography, soil properties, soil condition, cover, and land use. Cover is the main factor in controlling erosion. Sufficient cover requires adequate vegetation (basal cover and foliar cover) and natural litter. Cover intercepts precipitation, reducing raindrop impact, restricting overland flow, and allowing more infiltration and less runoff and erosion.

Natural litter is an important component of cover. Not only does litter provide the benefits discussed above but also adds to the overall health of the soil by improving soil structure, thus improving the ability of the soil to absorb water. Litter also supplies nutrients to the soil.

Research has found that cover values of 30 to 40 percent are the lowest needed to control sheet and rill erosion and that 20 percent cover is needed to prevent wind erosion. The 30 to 40 percent minimum cover values are more pertinent to the arid regions, where cover is naturally sparse. Cover values of 85 percent are not uncommon in the plains grasslands.

Rangelands are affected by all three types of water erosion: sheet-rill, gully, and streambank. Sheet-rill erosion is insidious in being often unnoticed yet capable of reducing the productivity of rangeland soils. Conversely, gully and streambank erosion are far more noticeable. Many of the uplands, especially in more arid regions, have a gully network inscribed throughout, replacing what was once grass-covered swales. As a result, water flow patterns in arid areas have been altered, causing an increase in size and frequency of runoff events and sediment yield to local water sources. Some researchers have concluded that 75 percent of the erosion in desert systems is the result of gully and streambank erosion.

The affect of wind erosion on rangelands has not been sufficiently researched. Vegetation cover on most rangelands appear to be sufficient to keep wind erosion from becoming a problem. Most wind erosion problems result from bare soils, such as along trails or on disturbed surfaces.

#### **RIPARIAN SOILS**

Soil formation in riparian areas differs from soil formation in uplands. In riparian areas, the basic building block of soil formation, mineralized sediment, is deposited from erosion of adjacent uplands, vertical deposition of stream sediment during overbank flooding, and lateral deposition of stream sediment from stream meander migration. The position of soils in relation to alluvial groundwater is one of the dominant factors controlling the rate, degree, and form of soil genesis (Platts and others 1987). These processes create complex soil patterns, exhibiting differences in age, texture, and degree of formation over relatively small areas.

Riparian soils are important for supporting a productive vegetation community, allowing groundwater recharge during overbank flooding and forming stream channel banks.

Soil orders most common in riparian areas of are Entisols, Mollisols, and Histisols. Histisols, not previously discussed, contain at least 50 percent organic matter in the upper 32 inches of their profile. Histisols occur most commonly within seep and boggy areas in the alpine zone.

#### **RIPARIAN HYDROLOGY**

Riparian communities support several hydrological interactions that benefit the overall ecosystem. Vegetation overhanging streambanks helps regulate water temperature, indirectly maintaining dissolved oxygen levels needed for aquatic life. Dense vegetation and relatively level slopes slow runoff from uplands as it passes through the riparian zone, thereby allowing sediment to be deposited and groundwater to recharge. Similarly, natural floodplain obstructions, like vegetation, control overbank flooding. Being fed by alluvial groundwater, streams often remain perennial during dry seasons and extended droughts. In addition to overbank flooding and upland runoff, groundwater is recharged during high flows through channel banks.

Stream channels formed in alluvium depend on the adjacent riparian zone for their stability. Channels regulate the energy of flowing water by adjusting channel features, including width and depth, streambed slope, the degree of stream meandering, and the roughness of channel bed and banks. (Roughness is caused by features such as vegetation, bed materials, and gravel bars.) Streams functioning in a state of dynamic equilibrium, in which there is a balance between erosion and deposition, experience no net loss or gain in sediment load. As flow and sediment supply vary, channel features adjust in an attempt to achieve a new balance.

Riparian communities are degraded by on and off-site disturbances. Sensitive hydrologic interrelationships exist between the condition of uplands and their associated riparian communities. Uplands in nonfunctioning condition often experience increased surface runoff, higher sediment yields, and increased erosion within stream channel systems (DeBano and Schmidt 1989). Direct disturbance, such as overgrazing, has increased erosion in some riparian communities.

Stream-riparian systems experiencing increases in runoff and sediment from upland disturbances or increased susceptibility to erosion from direct disturbances often cannot adjust their channel features to achieve equilibrium. If sediment increases beyond the stream's ability to carry it, channels tend to aggrade and form multiple interwoven braids. In another type of system, where channel erodability or streamflow is increased, with relatively low sediment production, channels will erode.

Streams with coarse-textured substrates and fine-textured banks tend to laterally erode, becoming shallower and wider, often creating braided conditions. Stream channels with fine-textured substrates, common at lower elevations, usually erode vertically, forming gullies.

Shallow and wide streams are sensitive to overgrazing because the stability of their banks depends on the type and vigor of the streamside vegetation. Such streams are considered

hydrologically nonfunctioning because streamflow and sediment supply are not in balance and these streams have lost many beneficial riparian functions: overbank flooding, floodplain sediment deposition and soil forming processes, alluvial groundwater recharge, maintenance of water quality, and reduction of flood peaks.

When disturbance factors are removed, most riparian-stream systems begin a relatively rapid recovery toward properly functioning condition. Incised or laterally widened stream systems, however, with low sediment yields, with or without fluctuating flow patterns, do not recover so rapidly.

The main water quality issues associated with grazing practices on federal land in the study area are nonpoint-source pollutants; sediment, fecal coliform bacteria (used as an indicator for other fecal pathogens), nutrients, and salinity. The Clean Water Act influences both agencies' policy and responsibility for water quality standards and nonpoint-source water quality management (Van Haveren and others 1985). The national nonpoint-source strategy is to:

- Cooperate with and assist state agencies in the management of federal lands to reduce nonpoint-source pollution.
- Address water quality impacts, including nonpoint-sources, in land management actions planned and implemented, including best management practices (BMPs),
- List and address nonpoint-source water quality issues in plans,
- Provide people and resources to identify nonpoint-source pollution and develop control techniques through coordinated research and the implementing of best management practices, and
- Implement program practices in conducting land use and land management activities to avoid or reduce water quality impacts and to improve water quality as needed to meet management objectives and regulatory requirements.

Sediment, America's most widespread pollutant, is an important consideration in the control of other pollutants such as nutrients and salinity since sediment often transport of sediment often releases the pollutants into stream systems. Generally, the most significant impact of sediment is the effect of siltation on stream and riparian systems. Sediment on federal land is caused by upland (sheet and rill erosion) and channel erosion. Channel erosion is often accelerated where stock ponds and other water-related structures are improperly built or maintained. In watersheds with actively incising stream



channels, channel erosion can be greater than upland erosion (Osborn and Simanton 1989). Lower elevation rangelands, where vegetation cover is limited, have the highest sediment production rates. Typically, sediment carried in surface water represents only a fraction of total erosion, which is determined by drainage size, shape and relief, topographic and channel characteristics, and characteristics of runoff and rain (Chow 1964).

Fecal bacteria populations in surface waters are known to increase with the presence of livestock. Factors controlling the severity of fecal bacteria pollution include number of livestock, closeness of grazing to surface water, and surface runoff conditions on areas being grazed. Excessive nutrient loading of surface waters from livestock results from similar factors as for bacteria.

BLM has several ongoing activity plans and coordinated resource management plans containing upland and riparian objectives, as directed by BLM's Riparian-Wetland Initiative. Commonly the objectives are to improve and protect riparian and upland areas to reduce accelerated (human-caused) sediment production. Most, if not all, of the state nonpoint source programs within the study area lack numeric sediment standards which may be used to evaluate BLM's level of compliance. But maintaining or improving nonpoint-source water quality by implementing management plans, does comply with the Antidegradation Policy (40 CFR 131). Implementing management plans could also result in compliance with nonpoint-source narrative criteria, which qualitatively describe limits for sedimentation impacts.

Activity plans and coordinated resource management plans implemented to improve nonfunctioning upland and riparian areas indirectly reduce the factors attributed to fecal bacteria and nutrient pollution of surface waters. Typical nonpoint-source water quality standards for fecal coliform bacteria are 200 colonies/100 ml and 2000 colonies/100ml for primary and secondary contact recreational waters, respectively. Colorado has a nutrient standard for nitrate-nitrogen of 10 mg/l for drinking water. The agencies, however, do not commonly monitor for compliance with numeric fecal coliform bacteria and nutrient standards on an allotment basis.

Federal lands in nonfunctioning condition and not being managed under an activity plan or coordinated resource management plan could be out of compliance with nonpoint-source programs. But monitoring data to support this conclusion are lacking.

BLM participates in a federal program directed by the Colorado River Basin Salinity Control Act (PL 98-569) to reduce salt loading in the Colorado River. Salt concentrations on federal land are highest in marine shale geologic settings, where annual precipitation averages less than 12 inches (BLM 1987a).

It has been estimated that federal land contributes 8 percent of the total salt load of the Upper Colorado River Basin from nonpoint-sources (BLM 1980a). Salinity from nonpoint-sources increases with sediment yield. Vegetation cover is the most important management variable influencing runoff and sediment yield (BLM 1987a). BLM in most of the Upper Colorado Basin states has active plans to reduce salinity contributions to the Colorado River using vegetation management.

## **WILDLIFE**

Federal land sustains an abundance and diversity of fish and wildlife. As population pressures further restrict wildlife habitats, the habitats on federal land are becoming increasingly important in maintaining a national fish and wildlife heritage and overall biological diversity. Across the West, federal land provides a permanent or seasonal home for more than 3,000 species of mammals, birds, reptiles, fish, and amphibians. All species (plant and animals including invertebrates); their genetic differences; and their habitats, communities, ecosystems; and landscapes make up an area's biological diversity.

### **UPLAND**

#### **SAGEBRUSH**

Typical wildlife of open sagebrush include the sage grouse, sage thrasher, sage sparrow, sagebrush lizard (all named for the type of vegetation), black-tailed jack rabbit, pygmy rabbit, Great Basin and chisel-toothed kangaroo rat, deer mouse, Columbian ground squirrel, Townsend ground squirrel, sagebrush vole, coyote, black-billed magpie, gray flycatcher, canyon wren, horned lark, burrowing owl, red-tailed hawk, ferruginous hawk, prairie falcon and several other raptors.

Reptiles in the sagebrush habitat include the common garter snake, western rattlesnake, western ground snake, western skink, and sagebrush lizard.

Pronghorn antelope commonly live in sagebrush habitats when the sagebrush is less than 24 inches tall, a variety of forbs and other forage occupy the stand, the stand has less than 50 percent cover, and other components, such as water, are present (Cooperrider and others 1986). Mule deer, golden eagles, prairie falcons, and in some areas, bighorn sheep and chukar partridge commonly live around sagebrush habitats on broken terrain, especially rimrock. California bighorn sheep, the rarest North American subspecies, inhabit the rocky canyon complexes of southeast Oregon and southwest Idaho. In areas with low precipitation and forage production, the sagebrush's thermal cover may be critical to deer and other wildlife survival (Molini 1990).

As an elevational ecotone, the sagebrush habitat is important to mule deer, elk, mountain lions, bobcats, coyotes, bald and golden eagles, ravens, large predators, scavengers, and other wildlife. Sagebrush, often with scattered juniper and pinyon, commonly grows below deep layers of snow, making it suitable for wildlife winter rangelands along western mountain slopes. Most western winter rangelands critical to wildlife survival have plenty of sagebrush. Though most sagebrush and junipers are low-quality forage, they are usually associated with high-quality browse, such as bitterbrush, mountain mahogany, and cliffrose.

#### **DESERT SHRUB**

A host of animals live in hot deserts, whose vegetation can support favorable populations of mule deer, kit fox, spotted skunk, Merriam's kangaroo rat, rock squirrel, Harris' antelope ground squirrel, southern grasshopper mouse, Harris' hawk, prairie falcon, common raven, Gambel quail, mourning, white-winged, and common ground doves, elf owl, Bendire's thrasher, curve-billed thrasher, phainopepla, Lucy's warbler, Canyon towhee, black-throated sparrow, desert tortoise, sidewinders and other rattlesnakes, side-blotched lizard, desert spiny lizard, desert iguana, chuckwalla, Gila monster, and several other lizards (Shelford 1963).

Hot desert vegetation occupies the habitats of most desert bighorn sheep, including sheep being reestablished. BLM and the Forest Service manage roughly 80 percent of the remaining desert bighorn habitat. Desert bighorn populations have been expanded dramatically in recent years through transplants and habitat and water developments.

#### **SOUTHWEST SHRUBSTEPPE**

Historically, southwest shrubsteppe communities consisted of hot, arid, desert grasslands with small shrub components, growing mostly in southeast Arizona and southern New Mexico. But past uses resulted in these communities being invaded by brush that fragmented the grassland and reduced populations and distribution of wildlife. Animals such as the aplomado falcon, wolf, grizzly bear, and black-footed ferret have been replaced by animals that prefer brushlands. Examples of the replacement process created by vegetation change include the reduction in pronghorn antelope and Coues' whitetail deer and increase in mule deer and javelina. Over the past 10 years, the grasslands in parts of New Mexico rebounded when management and weather improved.

Wildlife typical of the southwest shrubsteppe include the bannertail kangaroo rat, black-tailed jackrabbit, badger, white-throated wood rat, pronghorn antelope, black-tailed prairie dog, Coues' white-tailed deer (in the western portion at higher elevations), scaled quail, Gambel's quail, Swainson's and

ferruginous hawks, lesser nighthawk, Chihuahuan raven, verdin, cactus wren, pyrrhuloxia, McCown's longspur, green toad, southern prairie lizard, round-tailed horned lizard, desert grassland whiptail, western hooknosed snake, Mexican black-headed snake, and massasauga. Desert bighorn sheep have been re-established into some historic habitats in this type. In New Mexico, the southwest shrubsteppe supports the exotic oryx and ibex in some areas.

The southwest shrubsteppe often supports excellent upland game and raptor populations. When not in proper functioning condition, this type can be less valuable for Montezuma and scaled quail and will favor some raptors over species that have adapted to grasslands.

#### **CHAPARRAL-MOUNTAIN SHRUB**

The chaparral-mountain shrub is the study areas's most widely scattered vegetation community. Because it is a mid-elevation montane vegetation type, many species of wildlife may seasonally descend or ascend to the community during winter or summer. Openings in this type can result in abundant herbaceous and shrubby forage for several years. But excessive use can reduce desirable herbaceous and browse species, increase unpalatable shrubs, leave less ground cover in usually steep areas, and subject areas to greater erosion. Such areas may be classified as nonfunctioning or functioning but susceptible to degradation.

The chaparral-mountain shrub community has diverse populations of wildlife, especially big game. Widespread in this community are large mammals such as mule deer, coyote, mountain lion, bobcat, and gray fox. White-tailed deer and collared peccary live in southern parts of this community type. Black-tailed jackrabbits and striped and spotted skunks also occur. Adapted to thick cover in the chaparral-mountain shrub community, the ringtail cat hunts for smaller mammals such as white-footed and brush mice. The wood rat is one of the most characteristic animals in these communities.

Birds are numerous throughout the year; more than 50 resident species have been identified in the scrub oak type in Utah. Distinctive birds in the chaparral-mountain shrub type include the rufous-sided towhee and black-chinned sparrow. Other birds include the black-throated gray warbler, scrub jay, Bewick's wren, plain titmouse, acorn woodpecker, and saw-whet owl.

Reptiles that feed on insects, bird eggs, nestlings, and small mammals include the gopher snake, western patch-nosed snake, night snake, eastern fence lizard, short-horned lizard, and Gilbert's skink.



## **PINYON-JUNIPER**

Pinyon-juniper communities often produce good big game populations. Typical wildlife include mule deer, elk, desert kangaroo rat, pinyon mouse, bobcat, mountain lion, red-tailed hawk, golden eagles, wintering bald eagles, wild turkey, ash-throated flycatchers, western wood peewees, scrub jays, and plain titmice. Similar to reptiles in adjacent desert and forest communities, the reptiles of this type include the striped whip snake, California king snake, short-horned lizard, eastern fence lizard, collared lizard, Arizona black rattlesnake, and western patch-nosed snake.

The evergreen oak-alligator juniper vegetation community in southeast Arizona has the following animals associated with it, coati, ringtail cat, black bear, Coues' white-tailed deer, Montezuma quail, band-tailed pigeon, whiskered screech-owl, white-eared hummingbird, Strickland's woodpecker, gray-breasted jay, bridled titmouse, black-chinned sparrow, giant spotted whiptail, ringneck snake, and black-tailed rattlesnake.

## **MOUNTAIN AND PLATEAU GRASSLANDS**

In the past, shrubs were insignificant to the mountain and plateau grasslands because cool-season bunchgrasses covered broad areas. Today, poor management practices have increased the dominance of such shrubs as sagebrush, saltbush, rabbitbrush, and bitterbrush (Shelford 1963).

The mountain and plateau grasslands offer habitat for a large variety of wildlife. Pronghorn antelope are residents, and mule deer and elk are winter visitors. Where grasslands adjoin sagebrush communities, common animals include the black-tailed jackrabbit, pygmy cottontail, and mice. At low to medium elevations, badgers are present as well as subspecies of ground squirrels. The pocket gopher is well distributed in these communities. Predators include the bobcat, mountain lion, and coyote. Common birds include the scrub, pinyon, and Stellar's jays; Clark's nutcracker; rock and canyon wrens; and dark-eyed junco. Marsh hawks, American kestrels, and golden eagles are common raptors. Reptiles include the lesser earless and collared lizards, the western terrestrial garter snake, and the pine gopher snake.

## **PLAINS GRASSLANDS**

The plains grasslands, mixed and short, support a unique group of animals. Many grassland animals are burrowers and others are swift runners. Most burrowers and swift runners have keen eyesight and are quite gregarious, forming large herds or enormous colonies (Shelford 1963).



Huge herds of American bison once migrated with the seasons across the central plains. Now the pronghorn antelope is probably the most common large mammal, but mule deer and white-tailed deer are often abundant near brush, such as along stream. Burrowing rodents include ground squirrels, prairie dogs, pocket gophers, and pocket mice. Burrowing predators include the badger, kit fox, and the spotted skunk. The white-tailed jackrabbit occupies the northern part of the ecosystem, and the black-tailed jackrabbit occupies the southern part. The desert cottontail is widespread.

Birds in the plains grasslands include horned lark, killdeer, western meadowlark, sharp-tailed grouse, and burrowing owl. Reptiles include the western hognose snake, great plains skink, and plains garter snake. Amphibians of the region include the plains spadefoot, great plains toad, and western box turtle.

In the plains, most major waterways and their associated riparian areas have a west-to-east orientation. The typical vegetation of the plains riparian areas consists of cottonwood and the cottonwood-willow communities. Riparian corridors are travel routes for wildlife moving westward and for the mountain species moving eastward. White-tailed deer, raccoon, opossum, and many birds migrate west along the riparian areas. Grizzly bear and bighorn sheep migrate east onto the plains along the riparian corridors, breaks, and canyons.

The plains grasslands consist mostly of short-grass prairie, mixed grass prairie, and sandhills prairie. The short-grass community is dominated by blue grama and buffalo grass. Historically, the short grass prairie evolved with a diverse community of grazing mammals, including ground squirrels, prairie dogs, elk, pronghorn and bison. Free-ranging herds of elk and bison are mostly gone, and the prairie dog ecosystem has been largely reduced and fragmented. The gray wolf has been replaced by the coyote, and the swift fox is on several state threatened and endangered lists.

Density and variety of birds in this area are relatively low (Bock and others 1993), with most species migrating to the region during the spring and summer breeding season. Birds remaining during winter are generally limited to the sharp-tailed grouse, horned lark, a few raptor species, and a handful of other species.

Mule deer and white-tailed deer are now common along wooded draws and riparian areas and in areas of broken topography. Recovery of deer populations can largely be attributed to state harvest and management regulations and beneficial farming practices.

Reptiles and amphibians of the plains grasslands include the bull snake, rattlesnake, great plains toad, and western box turtle.

The mixed grass prairie occupies an ecotone between the short-grass prairie to the west and true tall-grass prairie to the east. This region takes on the plant and animal characteristics of the drier shortgrass prairie or moister tall grass prairie, depending on land use practices and physical site characteristics (Bock and others 1993).

Where livestock grazing strategies and site characteristics favor taller grasses like western wheatgrass and green needlegrass, species like the prairie vole, short-eared owl, and greater prairie chicken are more abundant. Significant numbers of upland nesting waterfowl such as the mallard, gadwall, and shoveler are also found where upland cover levels near reservoirs and small impoundments allow for nest concealment and successful nesting. Where land use management and site characteristics favor vegetation of the short-grass prairie, prairie dogs, burrowing owls, and mountain plover benefit.

Nebraska's sandhills prairie, though once a great desert of sifting sand, is now a great sea of grass. When livestock grazing levels are conservative, such tall grasses as sand bluestem, switchgrass, and prairie sandreed thrive, as do scattered thickets of American plum, western chokecherry, and snowberry. The sandhills fauna is similar to that of the mixed grass prairie. In most of the sandhills, the greater prairie chicken and plains sharp-tailed grouse habitats overlap. The greater prairie chicken, plains sharp-tailed grouse, horned lark, and some raptors make up the only avian winter residents of the region. Common predators in the area include coyote, striped skunk, bullsnake, and several raptor species. Western box turtles and earless lizards abound. The scattered shrub thickets attract many of the avian species more common to the eastern forests, including brown thrashers, loggerhead shrikes, and red-headed woodpeckers.

Many burrowing rodents, especially ground squirrels and prairie dogs, require moderate to heavily grazed grasslands where visibility is relatively unrestricted. Heavy, dense, grass/forb vegetation hinders their ability to avoid ground and avian predators. Historically, the bison probably played a significant role in keeping parts of the plains grassland ecosystem open and more suitable for burrowing rodents. This function has now been replaced by livestock grazing.

Livestock grazing helps maintain prairie dog complexes and tends to promote conditions suitable for black-footed ferrets, an endangered species. Where livestock are managed at suitable levels, they maintain the open, high-visibility characteristic needed by prairie dogs and therefore by black-footed ferrets.

#### **ANNUAL GRASSLANDS**

Livestock grazing favors the development of low-growing early spring maturing forbs and summer annuals. Without grazing, annual grassland are often dominated by dense stands of grasses such as ripgut brome and wild oats.

Loss of most of California's annual grassland to agriculture and development makes the remaining portions of federal land important for maintaining wildlife habitat. The agencies are actively conserving California's annual grasslands whenever possible.

#### **ALPINE GRASSLANDS**

Wildlife of the alpine grasslands include the pika, pocket gopher, and yellow-bellied marmot, all permanent residents. Summer visitors include mule deer, elk, mountain sheep, weasels, marten, chipmunks, and the golden mantle ground squirrel. Nesting birds using the alpine zone include the horned lark, warwe pipit, black rosy finch, rock wren, robin, and white-tailed ptarmigan.

#### **CONIFEROUS AND DECIDUOUS FORESTS**

Each type of coniferous forest depends on a certain combination of climate regimes and soil development of its area. Important forests include the ponderosa pine, Douglas-fir, and fir-spruce forests. Mule deer live in coniferous and deciduous forests, preferring rough terrain for cover and shrubs for food. Elk graze in high mountain meadows during the summer and shrublands in the winter. Other animals common in western forests are the northern flying squirrel, golden mantled ground squirrel, and red squirrel, which prefers spruce-fir forests and is found in the Rocky Mountains. Porcupines are the largest rodent in western forests.

Resident birds in this region include the pygmy nuthatch, Stellar's jay, sharp-shinned hawk, red-breasted nuthatch, mountain chickadee, Cassin's finch, northern flicker, dark-eyed junco, western goshawk, red-tailed hawk, and great-horned owl. Birds that are common during the summer include the western bluebird, yellow-rumped warbler, yellow-bellied sapsucker, western flycatcher, and western tanager. The spruce grouse inhabits the higher elevation spruce and fir forests, the blue grouse uses mid and lower elevation forests, and the ruffed grouse is most common in riparian areas.

Common reptiles include the wandering garter snake, pine gopher snake, and western rattlesnakes. The most common amphibians include the Rocky Mountain toad and the common leopard frog of the Rocky Mountain states (Dickerson 1969).

The deciduous forest portion of the analysis region consists mainly of aspen forest and parkland. Aspen, one of the most widespread plants in the world, is important wildlife habitat. Aspen groves are commonly associated with coniferous forest and mountain meadows and grasslands. Aspen typically make the edges of forests more diverse and increase habitat diversity. Aspen stands also tend to have more ground cover than coniferous forests. Aspen leaves and new growth shoots are also palatable to big game.

#### RIPARIAN, WETLAND, AND AQUATIC COMMUNITIES

Perhaps the most significant wildlife habitats on federal land are the riparian habitats. Undisturbed riparian ecosystems normally provide abundant food, cover, and water, and often contain some special ecological features or combination of features that are not often found in upland areas. Consequently, riparian ecosystems are extremely productive, and have diverse habitat values for fish and wildlife. The importance of riparian ecosystems can be attributed to biological and physical features, including the following:

- ♦ Predominance of woody plant communities;
- ♦ Presence of surface water and abundant soil moisture;
- ♦ Closeness of diverse structural features (live and dead vegetation, water bodies, nonvegetated substrates), resulting in extensive edge and structurally heterogeneous wildlife habitats;
- ♦ Distribution in long corridors that provide protective pathways for migrations and movements between habitats (Brinson and others 1981).

Riparian areas are also extremely significant to bird populations (Bull and Skoulin 1982). Of the 148 species of breeding birds in the Great Basin, only 17 (11 percent) do not use riparian areas (Ohmart and Anderson 1982). Eighty-two percent of breeding birds in northern Colorado optionally survive in riparian areas, and 51 percent of all birds in the southwest states depend on riparian areas (Knopf and others 1988). Riparian areas also attract a disproportionate number of migrating birds and are primary habitat for waterfowl and shorebirds. Riparian areas or wet meadows are critical to the rearing of sage grouse broods (Call 1974). Riparian areas with large deciduous trees, such as cottonwoods, are the most significant for most nongame birds and raptors. The trees' variety and densities increase significantly in multilayered riparian systems (Cooperidder and others 1986).

Other vertebrates also depend on riparian areas (Knopf and others 1988; Medin and Clary 1989; Kauffman and others 1982). Riparian areas are also significant to big game. Pronghorn antelope use them extensively in summer (Cooperidder and others 1986). Mule deer and elk also use riparian areas extensively for food and



cover and for travel and migration corridors (Thomas and others 1979). Riparian areas in desert ecosystems also provide significant wildlife habitat as has been demonstrated by the presence of many desert wildlife, from mule deer (Krausman and others 1985) through the avian species (Johnson and Haight 1985).

Several studies have reported the harmful effects of cattle grazing on riparian vegetation, and recovery of vegetation when grazing is modified, reduced, or eliminated (Ames 1977; Knopf and Cannon 1982; Richard and Cushion 1982; Taylor 1986; Winegar 1977). The quality of fisheries has a direct correlation to the health of the riparian community (American Fisheries Society 1980; Platts 1982, 1990; Swanson 1989), and the best opportunity for improving fisheries productivity is to restore riparian habitats degraded by livestock grazing (Platts 1991).

Aquatic habitats are diverse and inhabited by many resident fish, including native and introduced species. Many waters are also inhabited by exotic species introduced for their sport fishing value. With the exception of certain examples and special status species, fisheries will be discussed only generically.

Assessments of riparian communities find that a significant portion are in less than proper functioning condition or not meeting forest plan objectives. Although aquatic inventories are incomplete, aquatic and riparian habitats are known to be degraded by livestock grazing. In the West, livestock grazing is the main use that degrades the condition of aquatic and riparian communities. Other activities, such as mining, timber harvesting, urbanization, recreation, or vegetation treatments, have caused less deterioration of riparian communities than livestock grazing.

In addition, nonnative (exotic) fish are aggressive competitors. When introduced to new habitats, they often prey on native fish or outcompete native fish for food and habitat. They have displaced or eliminated native fish or caused native fish populations to decline. Introduced fish include rainbow, eastern brook, golden, and German brown trout and Arctic grayling in cold water habitats. Fish that have been introduced in warm water habitats include carp, catfish, bullheads, small and largemouth bass, walleye, northern pike, white crappie, yellow perch, sunfish, and minnows.

#### **RESIDENT FISHERIES**

The following resources are habitats of resident fish on federal land within the scope of this EIS:

- 111,947 miles of streams;
- 771,573 acres of reservoirs; and
- 316,273 acres of lakes.



Resident fisheries include two basic types: cold water and warm water.

#### Cold Water Resident Fisheries

In cold water habitats, streams have low water temperatures; definite channel gradients; sand, gravel or rock substrate; strong currents; high oxygen content; low nutrient values; and no rooted aquatic vegetation (Smith 1966). The classification is less definite for lakes: generally the water temperature remains cold year-round (below 60 degrees F), nutrient values are low, and aquatic plants are not abundant (BLM 1986). Typical fish in cold water habitats include the native cutthroat trout; native suckers and minnows; and widely introduced rainbow, brook, and brown trout.

#### Warm Water Resident Fisheries

Warm water aquatic habitats have higher water temperatures, gentle channel gradients, soft bottom materials, slow currents, lower oxygen content, high nutrient values, and substantial rooted aquatic vegetation. Lakes often have similar characteristics, fewer channel features, and at least one warm season exceeding the water temperature limits of cold water fish (Smith 1966). Warm water fish include the bluegill, largemouth bass, crappie, catfish, squawfish, pupfish, and the exotic Asian carp (Cooperrider and others 1986). Warm water resident fisheries are mainly located at lower elevations in the southern part of the study area.

Invertebrates are known to be biologically diverse and productive on federal land because of the variety of accessible habitats. But more information is needed about them, including those that also live in aquatic habitats. Invertebrates will not be discussed in detail in this EIS.

If managed properly, grazing within riparian communities and along streams is compatible with other resources (Chaney and others 1990; Grette 1990; Platts 1990; May and Davis 1981). The timing, numbers, and duration of livestock use are the key factors that must be set and monitored to assure proper livestock management in healthy and degraded riparian areas (Chaney and others 1990).

The timing, number, and duration of livestock grazing, however, are not universally the same for every location. What works in Idaho may cause severe damage in the deserts of New Mexico or Arizona. Livestock, especially cattle, will spend a disproportionate amount of time in riparian areas compared to their use of uplands (GAO 1988; Clary and Webster 1989; Platts 1990).

Managers must consider many physical characteristics specific to each site in selecting the correct grazing prescription. If light, grazing can be used as a management tool to maintain most riparian areas in a highly productive state. But in some areas grazing may not be compatible with existing resources. In most cases, light use of a proper functioning riparian community will probably result in more forage consumed by livestock than would be consumed from deteriorated riparian areas under heavy use.

Livestock operators are among those that benefit most from healthy riparian communities. They experience less flood damage, sediment deposition, and erosion of meadows and hay fields. They can depend on late-season water source for livestock watering and hay field irrigation, and if not overused, an abundance of high quality forage.

Riparian communities in good condition are fragile and complex. They act like a huge sponge or natural reservoir in times of water abundance, then, through capillary action, slowly release stored water during dry periods of the year (BLM 1989). This results in moderated stream flow yearlong for perennial streams or extended periods of flow for intermittent streams (Heede 1977; Brinson and others 1981, Winegar 1977). In some cases, restored riparian habitats will reestablish perennial flow in streams that are intermittent in a deteriorated condition.

A healthy riparian community protects streambanks from erosion and maintains a high water table and productive habitat for fish and aquatic invertebrates. Overhanging vegetation protects water from direct solar heating and covers fish while they hide and rest (BLM 1989). Healthy riparian communities also provides habitats for hundreds of terrestrial species, significantly contributing to the biological diversity and quality of the ecosystem (Thomas and others 1979).

Excessive livestock grazing affects many resources watersheds, but no community is more susceptible to degradation than those associated with aquatic resources. Beginning at the headwaters, livestock severely trample source springs and destroy protective riparian vegetation and reducing spring outflow. Without shade from riparian vegetation, solar radiation rapidly increases water temperatures (F&WS and NMFS 1981).

Downstream, livestock heavily concentrate in the riparian zone removing protective vegetation. Trampling results in soil disturbance, particularly in wet meadows and stream channels. Erosion of the stream channel is accelerated, eventually resulting in a lowered water table, reduced water storage capabilities of streambanks and floodplains, and altered streamflow morphology (F&WS and NMFS 1981; Winegar 1977).

Altered streamflow morphology typically increases frequency and intensity of flooding (no retention of precipitation) and reduced late summer flow or loss of perennial flow when water is needed most. Increased runoff or frequent flooding further increases erosion, resulting in widened and straightened stream channels, which allows increased water velocity during flow periods and increased exposure of the water to sunlight. During low flow periods living space for fish is significantly reduced and water temperature elevates rapidly due to increased exposure to solar radiation. In addition, water for use in irrigation and watering of livestock is reduced.

As erosion progresses and water tables lower, natural grass meadows are left high and dry. Once meadow grasses die, brush species, such as sagebrush and rabbitbrush, immediately encroach and reduce the amount and quality of forage (BLM 1993g). Figure 3-2 shows the sequential degrading of a stream channel and its associated riparian community (wet meadow). As riparian resources degrade, accelerated erosion incises stream channels, lowering water tables and restricting historically wide floodplains to narrow riparian communities in wash bottoms. Figure 3-3 shows recovery of stream-associated riparian areas.

Figure 3-3 RECOVERY OF STREAM-ASSOCIATED RIPARIAN AREA

Heavy livestock grazing most severely affects the stream channel. Livestock tend to spend a large portion of their time within the riparian community because of the lush vegetation and shade. As a result, livestock consume a greater percentage of riparian vegetation than they consume on surrounding uplands. While grazing, livestock trample riparian vegetation and streambanks. Eventually protective riparian vegetation is lost. Streambanks are sheared off through trampling and become erodible (Bowers and others 1979).

Once streambanks are broken down and eroded, streams are left wide and shallow with significantly less living space or hiding cover for fish. Wide streams have huge surface areas exposed and susceptible to increased water temperatures and rapid evaporation (Brown and Krygler 1967; Crispin 1981). Eroding streambanks contribute excessive sand and silt accumulation over the stream bottom, decreasing aquatic invertebrates (fish food) production and smothering fish eggs in spawning areas (Armour 1978).

The most significant results of excessive livestock grazing in riparian areas are as follows:

- ♦ Fish, particularly salmonids, are reduced in numbers, size, and distribution, with populations eventually being eliminated.
- ♦ Water quality degrades from increased turbidity and chemicals (livestock pollutants) leaching through soils.
- ♦ Less or no water is stored within banks, causing flood damage and reduced late season flows of springs and streams.
- ♦ Less water exists for livestock, wildlife, farmers, and recreationists during dry periods, when water is in greatest demand.
- ♦ Recreational resources such as game, fish, watchable wildlife, and aesthetic values are reduced or eliminated.
- ♦ Wildlife habitats are lost as vegetation and water quality degrade or are eliminated.
- ♦ Vegetation changes from desirable grasses to less desirable, unpalatable shrubs, reducing the amount of forage for livestock.

#### NONGAME WILDLIFE

For purposes of this analysis, the expression nongame wildlife refers to a myriad of species that are not encompassed under the other topical wildlife categories of big game, upland game,



waterfowl, raptors, threatened and endangered species, and anadromous and resident fish. To facilitate the analysis however, nongame wildlife as considered herein will be referenced as a single entity, except as otherwise noted in specific narratives. Some nongame wildlife referenced here may or may not be protected by state or federal laws that regulate their being taken for sport or other purposes.

The impact analysis for nongame wildlife does not include animals designated under the Endangered Species Act as threatened or endangered, those proposed for listing as threatened or endangered, and those listed as candidate species. The impact analysis also does not consider species that BLM and the Forest Service refer to as sensitive. (See the "Special Status Species" in the following major section of Chapter 3.) Though sensitive species are not considered in the impact analysis, impacts to nongame wildlife resulting from the Proposed Action and alternatives could indirectly harm or benefit them. Nongame wildlife include the following groups of animals:

- Neotropical migratory birds
- Yearlong resident passerine birds
- Predatory animals (including those protected by law)
- Furbearers
- Bats
- Rabbits and hares
- Large and small rodents
- Herptiles (reptiles and amphibians)
- Terrestrial arthropods (insects and spiders)

Representatives of each group inhabit all upland and riparian habitats. Species inhabiting riparian habitats are expected to respond faster than species inhabiting upland areas because vegetation (habitat condition) in riparian areas would respond faster to management actions than would upland vegetation. Because of a major national initiative on their welfare, neotropical migratory birds are discussed in greater detail in the following section.

#### **NEOTROPICAL MIGRATORY BIRDS**

In recent years, public concern has been aroused by declining populations of birds that breed in the U.S. and Canada and migrate to Mexico, the Caribbean islands, and Central and South America to winter. Almost half of the birds that breed in the U.S. and Canada fall within this group, collectively referred to as neotropical migratory birds. Western federal land makes up an important portion of their breeding habitat. On BLM-administered lands alone, more than 170 birds have been documented. Riparian areas are especially vital, but all habitats on federal lands are important to neotropical migrants. BLM and Forest Service are

major partners in the Neotropical Migratory Bird Conservation Program, begun in 1990.

At the National Workshop on Status and Management of Neotropical Migratory Birds, Bock and others (1993) presented a paper summarizing the known effects of livestock grazing on these birds in western North America. They described livestock grazing as a widespread and important influence in four major ecosystems in western North America: grasslands of the Great Plains and Southwest, riparian woodlands, intermountain shrubsteppe, and open coniferous forests. They noted that "herbivory by native hooved animals has been an important, natural, ecological and evolutionary force in certain non-forested ecosystems" but added that "domestic livestock have increased the influence of grazing in most systems historically, and this influence has been particularly destructive to ecosystems where native grazing ungulates were scarce or absent." They further described riparian woodlands as centers of high diversity and abundance of neotropical migratory birds and many of these birds responding negatively to livestock grazing.

More research is needed on the effects of livestock grazing on neotropical migrants and their habitats. Nevertheless, since neotropical migratory bird populations are declining and some effects of livestock grazing on their habitat are understood, the following management recommendations were prescribed for the four ecosystems:

#### Grasslands

1. Substantially increase the amount of federal rangeland from which all livestock are permanently excluded.
2. Continue a modified version of the Federal Conservation Reserve Program to encourage landowners to convert and maintain formerly tilled croplands as grassland planted to native vegetation.

#### Riparian

1. Consider the condition of riparian areas when implementing grazing systems, and, when practical, manage riparian woodlands separately from adjacent uplands.
2. When riparian systems are grazed, moderate use during late fall and winter, or short-term use in spring, will be less damaging than continuous or growing season grazing. (This statement does not imply that moderate grazing causes no damage.)
3. Degraded riparian habitats may require complete rest from livestock grazing to initiate the recovery process.

4. Given their scarcity, fragility, and importance to neotropical migrants and other wildlife, western riparian ecosystems should be excluded from livestock grazing wherever possible.

#### Shrubsteppe

1. There is an urgent need for protection, restoration, and long-term study of shrubsteppe ecosystems (including birds) dominated by native perennial grasses, cryptogams, and moderate densities of shrubs, since shrubsteppe ecosystems probably existed before livestock were introduced.

#### Coniferous Forests

1. More research and studies are needed during both nesting and migration seasons, especially where comparisons are possible between replicated forested stands with known differences in grazing regimes or grazing histories.

#### **SPECIAL STATUS SPECIES**

This EIS considers the general state of special status species, since more detailed analyses will be done during the development of regional plans. Specific examples are given to demonstrate the current environmental conditions for special status species affected by livestock grazing.

Species that are considered special status species in this EIS include those that are listed by the state or federal agencies as endangered, threatened, candidate, sensitive, of special concern, and any other group that has been formally designated as a management concern. The Forest Service defines sensitive species as state-listed, federal candidates, and other nonfederal-listed species that require special attention. (Federal candidate and state threatened and endangered species include other species in addition to those on the federal threatened and endangered species list.) BLM and Forest Service have policies, involving high-priority cooperative habitat management, to prevent sensitive species from being federally listed as threatened or endangered and ensure their restoration.

One of BLM and Forest Service's goals is to avoid making the protection of one special status species a priority in land use management. Thus, they would avoid placing their efforts and funds on symptoms rather than on underlying causes. The agencies would prefer to manage complete communities or ecosystems supporting native plants and animals, several of which may have special status (West 1993). The agencies know that as human activities that harm ecosystems increase, more species inevitably will be lost (Holdgate 1991). Consequently, special status species, as well as their habitats, must be acknowledged.

The effects of livestock grazing on plant and animal communities depends on the nature of the affected plant or animal, grazing intensity, the seral history of the site, and long-term weather patterns (Milchunas and others 1988). Current ecological conditions can be linked to many individual resource conditions that have caused in endangerment to many species, groups of species, and sometimes everything within ecosystems. Also, management practices such as the use of fire, seeding of exotic plant species, or the use of chemicals or pesticides, can harm special status species. For a complete list of special status animals and plants as of September 1993, see Appendix F.

Many species and their habitats have been affected by livestock grazing, which in some cases has contributed to or caused the extinction or endangerment of species. For example, in a 1992 report, the General Accounting Office (GAO 1991b) cited several studies about the harm livestock grazing can cause certain wildlife species and their habitats. Concluding that current grazing practices degrade lands, the report discussed the tendency for livestock to transmit diseases to wildlife, destroy habitat, and change the composition of vegetation communities beyond what is practical for wildlife adaption. The report outlined the impacts on several animals in the hot deserts, including the threatened Mojave desert tortoise, candidate bighorn sheep, endangered Sonoran pronghorn, and Mearns's quail.

Grazing directly and indirectly impacts special status species. Direct grazing impacts include livestock consumption of palatable special status plants and trampling special status species. Also, any actions related to grazing operations, such as road killing special status species or harming species by building water improvements, constitute a direct take. Direct impacts to special status species are often readily distinguishable. The extent of direct takes of listed species is not well known since monitoring is inadequate.

Livestock grazing may also indirectly impact special status species. Examples of indirect impacts include altering plant communities by removing palatable species, introducing exotic plants, and losing aquatic habitats that special status species depend on. Changes in plant communities as caused by grazing are serious harmful effects to the overall ecosystem, which special status species depend on. Overgrazing slowly causes a decline in the diversity and abundance of native plants. Shifts in the abundance of plant communities favor or harm particular species.

Ecological decline from overgrazing is a gradual, long-term process. These effects are often hard to discern over time without exact measurement and tracking. As native plants die, they are usually replaced by exotic plants; inherently decreasing forage, watershed protection, and wildlife habitats.

Another example of indirect impacts on special status species is the increase of cowbird populations associated with livestock. Cowbirds place their eggs in the nests of other birds and let them raise their orphaned young. Unnaturally increased numbers of cowbirds can reduce the nesting success of special status bird species. These impacts to ecosystems have caused many species to decline, which in some cases have been so severe that species have become endangered or threatened.

Johnson (1989) reported that more than 100 riparian species are considered special status in Arizona and New Mexico, mainly because of livestock grazing. For example, in Arizona's Tonto National Forest, improper grazing prevented the regeneration of trees essential to nesting bald eagles (Chaney and others 1990).

According to Nehlsen and others (1991), Pacific salmon stocks are at risk in California, Oregon, Idaho, and Washington. Map 3-5 shows the distribution of listed and at-risk salmon stocks in the Pacific Northwest. Much of the remaining spawning habitat is on federal lands. About 134 of the stocks at risk are found in



national forests, and 109 on BLM-administered lands; both sets of land have degraded spawning and rearing habitats. About 77 percent of the stocks near public rangelands are at risk because of poor habitat conditions.

Understanding the current management of special status species is valuable in further understanding the positive impacts of making Range Betterment Funds available for improving degraded habitats. Many BLM and Forest Service conservation efforts will continue to benefit special status species. For example, the Forest Service has conservation policies in southern Nevada's Spring Mountains and BLM has policies to conserve Amargosa toads in southwest Nevada. However, these policies are not always practiced since the agencies lack key factors such as surveys or funding for conservation programs. Because of inadequate conservation programs, animals such as desert tortoises must be listed.

Degraded habitats and direct loss in the desert Southwest, as caused by livestock grazing, contribute to decreasing populations of desert tortoises. BLM is studying the impacts livestock grazing has on desert tortoises, which could affect grazing practices on more than 6.5 million acres of desert tortoise habitats. Introduced exotic plants and fire regimes have also degraded or eliminated habitats.

#### **BIOLOGICAL DIVERSITY**

This section discusses biodiversity management as related to the alternatives described in Chapter 2, especially special status species, ecosystem processes, and the impetus behind those processes.

The increase in wildlife and plants classified as endangered, threatened, candidate, or sensitive is influencing national direction toward ecosystem management and Rangeland Reform '94. More than 1,100 special status plants are known or suspected to grow on BLM lands, including 60 percent of all federally listed threatened and endangered species. However, special status species are not the only species that require special management. For example, more than 50 million acres of BLM-administered lands in the lower 48 states have yet to be inventoried for special status plants (BLM 1992h).

Returning special status species to a nonspecial status individually is expensive. The agencies may recover an array of special status species, a goal in biodiversity management, by rehabilitating their habitats and surrounding ecosystems. But to successfully prevent extinction, habitats must be improved at suitable rate.

The urgency and degree of action needed for habitat stabilization or improvement is greatest for the most rapidly declining

species. Successful recovery also depends on whether degraded habitats, which no longer support special status species, can

- 1) be rehabilitated to previously suitable habitat conditions or
- 2) serve as suitable habitat in some altered state that will still provide for the species in question.

For species declining at precipitous rates, immediate and total protection of their habitats may be required. Actions that are less timely and comprehensive will only lower rather than prevent the rate of extinction.

Managing for biodiversity entails recognizing plant and animal habitats and managing ecosystems and landscapes to sustain the processes that enabled those habitats to succeed and that contribute to their maintenance. For example, BLM and the Forest Service avoid letting land uses interfere with normal infiltration of annual precipitation into soil, which refills subsurface water reserves. The infiltration process ensures that the soil will not erode at unnatural rates. Soil compaction or a lack of plants and plant litter, however, can increase erosion.

Managing for biodiversity includes steps to prevent risks to natural habitats, biological processes, and the maintenance of biological diversity. Rangeland Reform '94 provides a means to evaluate grazing-induced processes as they affect federal rangelands. Grazing-induced processes have direct and indirect effects.

Examples of direct processes include forage removal and vegetation trampling exceeding what occurred before the livestock were introduced, and mechanical damage to soil from livestock using riparian areas or trailing along fencelines.

Indirect grazing-induced processes include the following:

- ♦ changes in stream channel characteristics and water quality as a result of using riparian areas;
- ♦ wholesale changes in plant communities resulting from the introduction of livestock;
- ♦ spread of such exotic plants as cheatgrass, medusahead wildrye, spotted and other knapweeds;
- ♦ altered precipitation infiltration and evapotranspiration regimes due to soil compaction exposure; and
- ♦ accelerated soil erosion as a result of hillside trailing.

Once the causes and rate of change to processes within an ecosystem are understood, BLM and Forest Service can act to maintain a desired rate of change.

After making management goals and action plans for ecosystems, the agencies must measure how effectively under the Proposed Action they can change the momentum of undesirable environmental processes, protect or restore the functions of desirable processes, and meet management goals.

If they cannot effectively deal with desirable and undesirable environmental processes, they will not meet their goals. Thus the extent of changes needed and the time needed for those changes to take effect are weighed against management alternatives to determine an effective course of action. The momentum of undesirable processes must first be slowed, then stopped. Then desirable processes can begin to take effect.

Some residual undesirable processes will likely remain for decades and even longer after livestock management is changed. Residual processes include long-term desertification resulting from the continued conversion, by wildfires, of shrubsteppe (sagebrush, desert shrub, and other vulnerable rangelands) to annual grasslands, fueled by cheatgrass and medusahead wildrye. By further reducing the total amount of shrubsteppe (or other) remaining habitat, this process would result in damage that in many cases could outweigh improvements in ecological condition. BLM and the Forest Service plan to slow or stop these processes while also implementing plans to protect and restore rangelands.

#### **WILD HORSES AND BURROS**

The Wild Free Roaming Horse and Burro Act of 1971 requires wild horses and burros to be managed at appropriate management levels and prohibits their relocation to areas where they had not lived before 1971. One of the Act's goals is to manage populations to create an ecological balance on federal land. Appropriate management levels have not been established on all herd management areas (HMAs) but are estimated to be 24,900 wild horses and 3,600 wild burros. HMAs with populations exceeding the appropriate management levels are managed to reduce the population by selective removals, fertility control, natural mortality, and other means.

At the end of fiscal year 1992, roughly 46,500 wild horses and 8,400 wild burros inhabited about 200 HMAs on federal land in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, and Wyoming.

Wild horses and burros tend to compete with livestock for forage and water. Normally wild horses almost exclusively eat grasses. Burros have a more diverse diet of grasses, forbs, and shrubs.

Wild horses and burros graze throughout their HMAs, including uplands and riparian areas. They migrate short distances during seasonal movements.

The most critical time of year is in the spring, during foaling season. During warm weather, wild horses and burros graze heavily around riparian areas, where they completely consume the forage before migrating. Wild horses' social structure, such as competition between stallions, causes dispersion. Wild burros tend to disperse as water becomes plentiful.

### **RECREATION**

Managed for such recreation uses as hunting, fishing, camping, sightseeing, water sports, winter sports, and off-highway vehicle use, federal land helps satisfy the public's demand for outdoor recreation, a contributor to the western economy. Most recreation uses depend on natural and cultural features of the land.

Intensive recreation management focuses on 4,972 developed and 24,139 undeveloped recreation areas and sites. Less than 1 percent of the study area consists of intensively managed, developed recreation areas and sites. Most undeveloped recreation sites are accessible to grazing livestock. Approximately one percent of federal rangeland lies within riparian areas.

Federal land has a growing number and diversity of visitors seeking recreation. Because of the growing interest and participation in recreation, significant demands are placed on existing recreation sites and facilities. More recreation sites and facilities and upgrades of existing sites are needed to satisfy the demands of growing populations. On BLM-administered lands during 1992, recorded recreation use exceeded 74 million visitors.

Both agencies issue special use permits for competitive and commercial recreation activities: off-highway vehicle competitive events, outfitter and guide services, four-wheel drive treks, equestrian events, festivals, and tours.

Western federal land is renowned for its diverse scenic and visual resources. Relatively high quality air and dramatic topography make for spectacular vistas. The popularity of scenic and back country byways and scenic overlooks further illustrate the value and appreciation of scenic quality.

### **WILDERNESS**

The Wilderness Act of 1964 does not preclude livestock grazing from wilderness, but some wilderness areas and wilderness study

areas are not grazed because they lack forage or have steep and rough terrain.

BLM manages 1,660,551 acres of wilderness and is recommending 9,718,996 acres of wilderness study areas to Congress for designation. The Forest Service manages 28,826,092 acres of wilderness and is recommending 1,954,502 acres to Congress for designation. So far, Congress has acted only on the wilderness study area recommendations for federal land in Arizona.

## **PALEONTOLOGICAL AND CULTURAL RESOURCES**

### **PALEONTOLOGICAL RESOURCES**

Paleontological resources are the remains of plants and animals preserved in soils and sedimentary rocks. They are important for understanding past environments, environmental change, and the evolution of life. Federal legislation (e.g. Federal Land Policy and Management Act, National Environmental Policy Act) directs agencies to manage paleontological resources to preserve them for scientific and public uses.

The Forest Service and BLM found at least 5 million acres of sensitive fossil-bearing geological deposits on western federal land. The fossils range in age from the Precambrian (more than 500 million years ago) to the recent (the last 10,000 years) and includes examples of all extinct and living phyla.

Paleontological remains range from mammoths associated with the Ice Ages about 10,000 years ago, to the microorganisms associated with the earliest evidence of life some 2.8 billion years ago. Paleontological items discovered on federal land include dinosaur remains in Nevada, Utah, Colorado, Wyoming, California, and Montana; fossil fish deposits from the Green River Formation; insect and plant fossils found in Nevada; and large petrified trees in Arizona and Nevada.

Paleontological resources can be found in any sedimentary formation or soil deposition context, but badlands shale, sandstone, limestone outcrops, fault scarps, and eroded lands have a high potential for containing fossils.

### **CULTURAL RESOURCES**

Cultural resources consist of the fragile and nonrenewable remains of human activity. They are found in historic districts, sites, buildings, and artifacts that are important in past and present human events. Cultural resources are divided into cultural properties and traditional lifeway values.

A traditional lifeway value is important for maintaining a specific group's traditional system of religious belief, cultural



practice, or social interaction. A group's shared traditional lifeway values are abstract, nonmaterial, ascribed ideas that cannot be discovered except through discussions with members of the group. Lifeway values may or may not be closely associated with definite locations.

About 12.3 percent of the 166,442,728 acres of Forest Service-administered lands and 5.7 percent of the 177,633,566 acres of BLM-administered lands have had cultural property inventories. Native American properties and paleontological resources have not been systematically inventoried, and less than 1 percent of federal land has been examined. The results of cultural property inventories are shown in Tables 3-8 and 3-9. The number of nationally significant areas are listed by designation in Table 3-10. (The tables are not based on a distinction between total acreage managed by the agencies and rangelands managed by the agencies.)

Cultural resources are managed mainly through the Section 106 (National Historic Preservation Act) compliance process. Before authorizing surface disturbance, BLM and Forest Service must list cultural properties eligible for inclusion on the National Register of Historic Places and consider the effects of the proposed undertaking through the consultation process in Section 106 of the National Historic Preservation Act (NHPA) of 1966. This process is implemented in accordance with 36 CFR. In many states, procedures for adapting the process to local needs have been developed through programmatic agreements among BLM or Forest Service, the State Historic Preservation Officer, and the Advisory Council on Historic Preservation.

Section 106 of NHPA does not prohibit disturbing cultural resources. In fact, an authorized officer may permit activities that damage or destroy them. In addition, mitigation is required only if disturbance would affect a property's attributes that make it eligible for the National Register.

In recent years, with an awareness and appreciation of cultural properties and traditional lifeway values, the inventory, protection, stabilization, and enhancement of cultural resources have become integral parts of Forest Service and BLM practices.

Table 3-8: CULTURAL RESOURCE INVENTORY DATA (Fiscal Year 1992 Annual Report)

Agency	Federal Land Acres	Acres Inventoried	Percent Lands Inventory	Sites Found	Eligible Sites
FS	166,442,728	20,500,000	12.3	200,000	180,000
BLM	177,633,566	10,204,529	5.7	171,003	19,297

Table 3-9: CULTURAL RESOURCE SITE DENSITY PROJECT (Fiscal Year 1992 Annual Report)

Agency	Estimated Total Sites	Estimated Eligible Sites	Acres Per Site	Acres Per Eligible Site
FS	1,623,831	1,461,448	102.5	113.9
BLM	2,976,705	335,909	59.7	528.8

Table 3-10: DESIGNATED NATIONALLY SIGNIFICANT CULTURAL RESOURCE AREAS

Designation	Number	Estimated Acreage
National Historic Trails	22	798,000 (2,494 miles)
National Register Listed Properties	1,034	432,913
National Historic Landmarks	12	117,167
Areas of Critical Environmental Concern	123	1,428,960
National Natural Landmarks	11	49,929
Research Natural Areas	5	10,537
Totals	1,207	2,837,506

#### PREHISTORIC, HISTORIC, AND MODERN ERAS

Prehistoric properties found in the U.S. extend back to the earliest human migrations to the Western Hemisphere, some 15,000 years ago. Prehistoric properties range from isolated artifacts, through small scale habitation sites, to complex agricultural villages and densely populated pueblos. Prehistoric human

occupations were rarely uniform over large areas, particularly where there were significant ecological changes over short distances. Consequently, site types, sizes, and densities are extremely variable.

Prehistoric cultural resources have been organized into early, middle, and late periods, with the early period commonly referred to as Paleoindian (15,000-8,000 years ago), the middle period as Archaic (8,000-2,000 years ago), and the final period as Late Prehistoric (2,000-200 years ago).

Cultural resources from the Paleoindian period are found in high-elevation coniferous and deciduous forests as well as lower elevation plains grasslands and in parts of the desert Southwest, mainly near water sources and in alluvial and colluvial soil deposits. People surviving during this period often hunted megafauna, such as mammoth and giant bison, that are now extinct.

Prehistoric cultural resources from the Archaic period reflect a shift from an exploitation of megafauna to an emphasis on hunting and collecting a variety of resources, such as fish, large and small game, and edible plants and nuts. Hunting sites, plant gathering sites, and temporary camps are likely scattered in most western ecosystems.

Beginning about 2,000 years ago, the Archaic period phased into the Late Prehistoric period with the introduction of agriculture, ceramics, the bow and arrow, and sedentary lifeways as major adaptive elements. In general, site types and patterns were the same as during archaic times except where lifeways shifted to an agricultural base.

The Prehistoric era began blending into the Historic era in 1492 when Europeans started significant migrations to the Americas. The historic period began in the Southwest in the 1500s with the Spanish entrada, while in the Pacific Northwest and the Great Basin, significant migration effects did not begin before the middle of the 1800s. In the Rocky Mountains and Plains the historic era did not begin until the exploitation of the region by the fur trade in the late 1700s and early 1800s.

Cultural properties related to the Historic era continue to include indigenous remains, but the resources are now dominated by artifacts, sites, and landscapes associated with early Euro-American exploration, the fur trade, mining, logging, ranching, farming, transportation, manufacturing, and urban development.

Beginning about 1900, the Historic era blends into modern times in ways that preserve elements of traditional and historic cultures and lifeways. For example, Native Americans continue traditional religious beliefs and practices and in many cases have maintained treaty rights to exploit traditional plant gathering and hunting

areas. Other groups such as Mormon ranchers have maintained traditional cultural beliefs and practices. Cultural properties of the Modern era may include areas for gathering plants, animals, or minerals. They may also include areas and landscapes that embody religious symbolism or practices, or landscapes that exemplify the effects of a historic lifeway, such as ranching or mining.

#### NATIVE AMERICANS

Native Americans use their local environments to gather native plants, animals, and minerals for use in religious ceremonies, rites of passage, folk medicine, subsistence, and crafts. In Native American religious practice, any environment can contain specific places that are significant for spiritual purposes. Those sacred places embodying spiritual values are often associated with indigenous rock art, medicine wheels, rock cairns and effigy figures, spirit trails and spirit gates, caves, and springs or lakes. Contemporary use areas are associated with traditional plant and mineral collection locales, vision quest sites, sun dance grounds, shrines, and traditional trails.

Federal concerns with Native American traditional lifeway values respond to the American Indian Religious Free Act of 1978 requiring federal agencies to evaluate their policies and procedures with the aim of protecting the religious freedom of Native Americans (Public Law 95-341 §2).

#### LIVESTOCK INDUSTRY

Participants in the traditional ranching life are carrying forward a significant part of the world's image of America and America's image of itself. Western ranching communities have traditional activities, social behaviors, and values that are part of the Nation's historic, cultural, and natural heritage. To maintain these traditional lifeway values, federal agencies, as required by the National Environmental Policy Act, respect these characteristics and a variety of individual choices.

The traditional western ranching culture can be traced to the 1600s in the Southwest and the 1850s in the North. It involves the production of cattle and sheep, mainly through grazing and haying of forage. The identity of many small towns and communities in the region is associated with this tradition.

The livestock industry has an associated landscape and a series of traditional cultural properties that includes livestock, developed springs, wells, and watering tanks in the uplands. Fencelines, wild horse traps, corrals, ranch houses, sheep herding camps, shearing pens, loading chutes, grange halls and community centers, and one-room school houses are all traditional cultural properties that contribute to the "built environment" of the traditional western ranching culture.



## **ECONOMIC CONDITIONS**

The description of economic conditions addresses the 16 western states where grazing is allowed on federal land, all of which would be affected by changes in rangeland management. The 16 states are Washington, Oregon, California, Arizona, New Mexico, Colorado, Wyoming, Montana, Idaho, Nevada, Utah, North Dakota, South Dakota, Nebraska, Kansas, and Oklahoma. Texas is not included due to the small amount of livestock grazing on federal lands in relation to the state's economy.

This section is organized into the following major sections: 1) Regional economy and trends, including subsections on trends in the agriculture industry and on livestock operations on federal lands; 2) Ranch income and operations; 3) Permit value; and 4) Grazing fee receipts and payments.

### **THE WESTERN REGIONAL ECONOMY AND TRENDS**

The economy of the western states, like the Nation, is highly diversified. Employment trends by industry are shown by the number of persons employed in Table 3-11 and Figure 3-4, and percentage of total employment in Table 3-12 and Figure 3-5.

The region employed over 22 million persons in 1982. This figure increased to exceed 33 million in 1990. (See Table 3-11.) Employment in all industries grew over this period, but the industries have experienced relatively significant changes.

Industries in which employment has increased as a percentage of total employment include services; finance, insurance, and real estate; construction; and retail trade. Industries that have decreased as a percentage of total employment include government; manufacturing; agriculture; transportation, communications, utilities; and mining. (See Table 3-12 and Figure 3-5.)

Employment in the agriculture industry grew from 1.28 million jobs in 1982 to 1.48 million in 1990. (See Table 3-11.) Despite this growth, agriculture has declined relative to the rest of the economy. In 1982, agricultural employment accounted for 5.8 percent of total employment; by 1990 that figure had decreased to 4.5 percent. (See Table 3-12 and Figure 3-5.)

Income trends by industry are shown in Table 3-13 and Figure 3-6. Table 3-14 and Figure 3-7 show income trends as percentages of total income.

The 16 western-state region had a \$1 trillion dollar economy in 1982 (1993 dollars). This figure increased to about \$1.35 trillion in 1990 (Table 3-13). All sectors except agriculture showed positive growth in income over the period. But the sectors have experienced relatively significant changes.



Table 3-11: WESTERN REGION TOTAL EMPLOYMENT BY INDUSTRY

Industry	1982	1985	1990
Agriculture	1,281,874	1,365,890	1,482,447
Mining	193,133	358,355	256,932
Construction	1,206,389	1,520,144	2,216,854
Manufacturing	3,426,744	3,822,776	4,035,126
T.C.U. <sup>1</sup>	1,154,412	1,367,472	1,411,454
Wholesale Trade	1,232,073	1,402,313	1,578,691
Retail Trade	2,183,976	3,067,445	3,630,195
F.I.R.E. <sup>2</sup>	1,269,743	2,350,408	2,398,461
Services	5,848,365	8,819,103	10,851,578
Government (Federal, State, and Local)	4,312,604	4,766,847	5,161,646
Total	22,109,313	28,840,753	33,023,384
<sup>1</sup> Transportation, Communications, and Utilities			
<sup>2</sup> Finance, Insurance, and Real Estate			
Source: Forest Service 1993e (IMPLAN)			

Figure 3-4: WESTERN REGION TOTAL EMPLOYMENT BY INDUSTRY 1982,  
1985, and 1990.

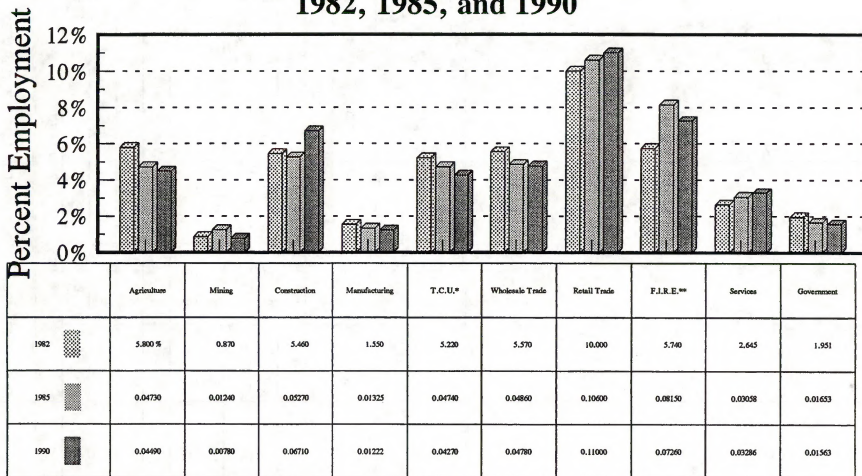
Table 3-12: WESTERN REGION PERCENT OF TOTAL EMPLOYMENT BY INDUSTRY

Percent (rounded)			
Industry	1982	1985	1990
Agriculture	5.8	4.7	4.5
Mining	0.9	1.2	0.8
Construction	5.5	5.3	6.7
Manufacturing	15.5	13.3	12.2
T.C.U. <sup>1</sup>	5.2	4.7	4.3
Wholesale Trade	5.6	4.9	4.8
Retail Trade	10.0	10.6	11.0
F.I.R.E. <sup>2</sup>	5.7	8.2	7.3
Services	26.5	30.6	32.9
Government (Federal, State, and Local)	19.5	16.5	15.6
Total (rounded)	100.00	100.00	100.0
<sup>1</sup> Transportation, Communications, and Utilities <sup>2</sup> Finance, Insurance, and Real Estate Source: Forest Service, 1993e (IMPLAN)			

Figure 3-5

# Western Region

## Total Employment by Industry 1982, 1985, and 1990



Source: USDA/Forest Service 1993 (IMPLAN)

\*Transportation, Communications, and Utilities

\*\*Finance, Insurance, and Real estate

Figure 3-5: WESTERN REGION TOTAL EMPLOYMENT BY INDUSTRY  
(PERCENT) 1982, 1985, AND 1990



Industries whose income has increased as a percentage of total income include services, manufacturing, and retail trade. Industries whose income has decreased as a percentage of total income include government; agriculture; wholesale trade; finance, insurance, and real estate; transportation, communications, and utilities; construction; and mining (Table 3-14 and Figure 3-7).

Income in the agriculture industry grew between 1982 and 1985, but by 1990 had fallen back to its 1982 level of \$32.9 billion (in 1993 dollars). As with employment, income in the agriculture sector has declined relative to the rest of the economy. In 1982, agriculture income accounted for 3.3 percent of total income; by 1990 that figure had decreased to 2.4 percent (Table 3-14 and Figure 3-7).

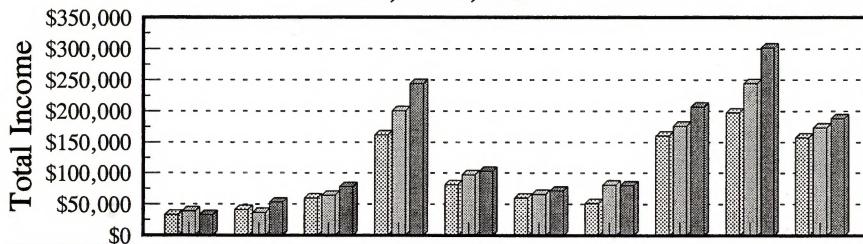
Table 3-13: WESTERN REGION TOTAL INCOME BY INDUSTRY<sup>1</sup>

Income in Millions of 1993 Dollars			
Industry	1982	1985	1990
Agriculture	32,912.0	38,927.5	32,902.8
Mining	41,250.0	36,539.5	53,132.9
Construction	59,552.0	63,890.0	77,910.3
Manufacturing	161,620.8	200,549.3	244,223.0
T.C.U. <sup>2</sup>	81,097.0	97,361.0	102,789.9
Wholesale Trade	60,224.5	65,860.4	71,187.7
Retail Trade	51,403.1	80,774.9	79,958.5
F.I.R.E. <sup>3</sup>	160,211.4	176,174.6	206,762.4
Services	197,613.7	244,620.5	301,650.8
Government (Federal, State and Local)	157,079.8	173,624.9	188,004.8
Total	1,002,964.0	1,158,323.0	1,358,523.0
<sup>1</sup> Total Income includes personal income and property income			
<sup>2</sup> Transportation, Communications, and Utilities			
<sup>3</sup> Finance, Insurance, and Real Estate			
Source: Forest Service, 1993e (IMPLAN)			

Figure 3-6

# Western Region

**Total Income By Industry (Millions of Dollars)  
1982, 1985, 1990**



	Agriculture	Mining	Construction	Manufacturing	T.C.U.*	Wholesale Trade	Retail Trade	F.I.R.E.**	Services	Government
1982	\$32,912	41,250	59,532	161,620	81,097	60,224	51,403	160,211	197,614	157,079
1985	38,927	36,539	63,890	200,549	97,361	65,860	80,775	176,174	244,621	173,625
1990	32,902	53,133	77,910	244,223	102,790	71,188	79,959	206,762	301,651	188,005

Source: USDA/Forest Service 1993 (IMPLAN)

\*Transportation, Communications, and Utilities

\*\*Finance, Insurance, and Real estate

Figure 3-6: WESTERN REGION TOTAL INCOME BY INDUSTRY IN 1982,  
1985, AND 1990

Table 3-14: WESTERN REGION PERCENT OF TOTAL INCOME BY INDUSTRY<sup>1</sup>

Percent (rounded)			
Industry	1982	1985	1990
Agriculture	3.3	3.4	2.4
Mining	4.1	3.2	3.9
Construction	5.9	5.5	5.7
Manufacturing	16.1	17.3	18.0
T.C.U. <sup>2</sup>	8.1	8.4	7.6
Wholesale Trade	6.0	5.7	5.2
Retail Trade	5.1	7.0	5.9
F.I.R.E. <sup>3</sup>	16.0	15.2	15.2
Services	19.7	19.4	22.2
Government (Federal, State and Local)	15.7	15.0	13.8
Total (rounded)	100.0	100.0	100.0
<sup>1</sup> Total Income includes personal income and property income			
<sup>2</sup> Transportation, Communications, and Utilities			
<sup>3</sup> Finance, Insurance, and Real Estate			
Source: Forest Service 1993e (IMPLAN)			

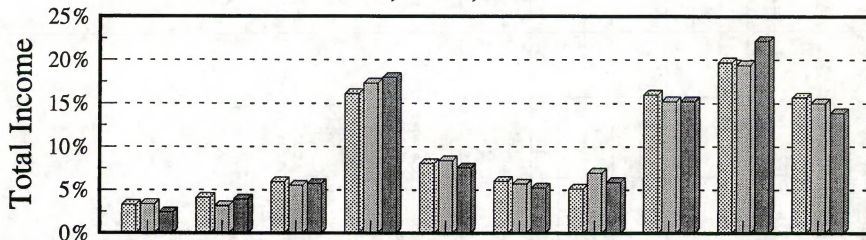
Income data for agriculture were supplemented by USDA reports (Williams and others 1989; Strickland and others 1991) showing the value of cash receipts to cattle operations for 1982, 1985 and 1990. (Cash receipts for sheep operations are included in 1990). Income data are helpful in understanding the trends within the agriculture industry. Income data show receipts to cattle operations in the region as \$23.2 billion in 1982, declining to \$20.6 billion in 1985, and then climbing to \$24.2 billion in 1990 (1993 dollars). (Including gross receipts for sheep operations of \$190 million in 1990 brings total gross receipts to sheep and cattle operations to \$24.4 billion in 1990.)

Figure 3-7

# Western Region

## Total Income by Industry (Percent)

1982, 1985, 1990



	Agriculture	Mining	Construction	Manufacturing	T.C.U.*	Wholesale Trade	Retail Trade	F.I.R.E.**	Services	Government
1982	3.28%	4.11	5.94	16.11	8.08	6.00	5.13	15.97	19.70	15.66
1985	0.0336	0.0315	0.0552	0.1731	0.0841	0.0569	0.0697	0.1521	0.1939	0.1499
1990	0.0342	0.0391	0.0573	0.1798	0.0757	0.0524	0.0589	0.1522	0.2220	0.1384

Source: USDA/Forest Service 1993 (IMPLAN)

\*Transportation, Communications, and Utilities

\*\*Finance, Insurance, and Realstate



## **STRUCTURAL CHANGE IN THE U.S. FARM SECTOR AND LIVESTOCK INDUSTRY**

This section discusses ongoing structural change in the U.S. farm sector and the livestock industry and helps explain the trends in agricultural employment and income described in the previous section. This information is excerpted from *Structural Change in the U.S. Farm Sector, 1974-1987* (Reimund and Gale 1992).

The general trend toward fewer but larger farms established during the 1950s and 1960s continued during the 1970s and 1980s, albeit at a slower pace. In the 1970s, favorable economic conditions and strong worldwide demand for U.S. farm products encouraged investment and borrowing in agricultural industries. The economic conditions during the 1980s made farming less attractive to entrepreneurs and investors. In addition, real farm incomes declined during the 1980s due to lower output prices and higher costs. Land prices, which rose significantly in the 1970s, declined in the 1980s.

The boom and bust cycle affected farm balance sheets. By 1988, real net farm income was about three-fourths that of 1974. Government payments and off-the-farm income enabled many farmers to continue farming during the 1980s. Today, relatively stable off-the-farm income raises the household income of farmers and moderates the annual fluctuation in net farm income.

### **Trends in the Size, Number, Ownership, and Organization of Farms**

Farmers have needed to adapt to changing technology and adopt advanced management practices to survive in today's complex and volatile farm economy. Between 1974 and 1987, farms with 50 to 499 acres dropped from 62 to 53 percent of all farms, declining the most of all farm sizes. The distribution of farms by type of business organization (family farms versus corporate farms) did not significantly change from 1978 to 1987.

Tenure status (full-time owner, part-time owner, or tenant) did not change significantly between 1974 to 1987 either, but the number of farmers whose main occupation was not farming increased substantially. Part-time farming has become a permanent and growing part of U.S. agriculture. Rural economic diversification has enabled many people, especially small-farm operators, to remain in farming on a part-time basis while earning their livelihoods from off-the-farm employment.

### **Effects of Recent Economic Events on Farm Size and Numbers**

Regional differences in entry, exit, and changes in farm size emerged during the 1970s. All regions rapidly lost farms in the 1960s, but the West gained farms in the 1970s. Many of the new farms in the West were small part-time farms, which caused a decrease in the average farm size. During the 1980s, the West

held a stable number of farms with a downward trend in the Plains. The Plains area is losing farms, while its average size of farms is increasing. Compared to prior years, the loss of farms during the 1980s was probably caused by a greatly reduced entry rate rather than an increased exit rate. Compared to other age groups, people less than 35 years old had the greatest decline in farm start-ups (40 to 50 percent) from 1982 to 1987, though this is the most common age group for people starting full-time farms.

### **The Cattle-Raising Subsector**

Nationally, the cattle-raising subsector consists of nearly 650,000 ranches. Most ranches are small, specializing in cow-calf and feeder cattle production (not cattle feedlots). Although large-scale ranches exist, they are the exception rather than the rule. Cattle raising works well as a small-scale production. In 1987, 85 percent of beef cattle ranches had less than \$25,000 annual sales, most operators worked full-time off the ranch, and operations were well suited to small-scale production.

Beef cattle raising is concentrated in eastern Texas, eastern Oklahoma, the Gulf Coast and southeast states, where farms are often small, part-time operations, and operators own most land used for raising cattle. Nationally, only 38 percent of the land used for cattle raising is leased. In western states, a substantial amount of federal land is leased but nearly 70 percent of cattle raisers own all the land they operate.

### **Farm Households and Farm Businesses**

The growth of alternative income for households with small farms, coupled with the increasingly industrialized, affluent, large-farm components within the farm sector have brought farmers into the American mainstream. Farm household income statistics no longer portray farmers as a disadvantaged group. The growing importance of off-the-farm income implies that most small farm operators believe public policies that strengthen the rural nonagricultural economy are more important to maintaining their household income than agricultural commodity programs and policies.

Although the average farmer's household income was on a par with that of all U.S. households by the end of the 1980s, the distribution of each group's household income is different. The 1988 median income for farm households was about 29 percent lower than all U.S. households, showing that a higher proportion of farm households have low incomes. Farm households have substantially higher average net worth than average U.S. households because of the capital-intensive nature of farming.

Some observations were made about farm households and farm businesses in the 1980s.

- ♦ Farms accounted for a significant portion of small businesses but a small portion of total sales of U.S. businesses.
- ♦ Agricultural and nonagricultural industries contained high proportions of small firms.
- ♦ Midsized farms receive a return on assets comparable to nonfarm businesses of similar size.
- ♦ Farms generate lower gross returns on assets than most other businesses, but their net returns are comparable.
- ♦ To earn an income equivalent to the U.S. average household income, farms do not need more assets than nonfarm businesses.
- ♦ Farms create fewer direct employment opportunities because they have a fairly high level of capital per employee.

#### LIVESTOCK OPERATIONS AND PRODUCTION ON FEDERAL LANDS IN THE WEST

BLM and Forest Service grazing statistical records show about 26,900 permits to graze livestock on federal rangelands (Forest Service 1993a and BLM 1993d). Because many livestock operators hold more than one permit, the total number of operators is less than the number of permits. In addition, about 14 percent of operators with federal permits hold both Forest Service and BLM permits (Forest Service and BLM 1992). In a recent survey of the western livestock industry, Fowler and others (1993) estimated that 22,350 livestock operators hold federal permits.

The roughly 21,000 beef cattle producers with federal permits make up 6 percent of total producers in the 17 western states. Excluding Texas, cattle producers with federal permits make up about 9 percent of the total producers. In the 11 western states, where federal rangeland is concentrated, permittees and lessees make up 22 percent of total beef producers. Beef cattle producers with federal permits make up about 3 percent of the 907,000 producers in the 48 contiguous states. (See Table 3-15 and Map 3-6.)

Table 3-15: BEEF CATTLE AND BEEF CATTLE PRODUCERS IN THE UNITED STATES IN 1993

REGION	BEEF CATTLE <sup>1</sup>	PRODUCERS <sup>1</sup>	PRODUCERS WITH FEDERAL PERMITS AND LEASES <sup>2</sup>	PERCENT OF PRODUCERS WITH FEDERAL GRAZING PERMITS
11-State Western Region	16,020,000	96,700	21,132	22.0
5-State Central West Region	22,090,000	137,500	952	0.7
Texas	13,820,000	125,000	163	0.1
TOTAL: 17 Western States	51,930,000	359,200	22,247	6.0
Eastern Region	34,724,000	547,500	570 <sup>3</sup>	0.1
TOTAL: 48 Contiguous States	86,654,000	906,700	22,817	3.0
<sup>1</sup> NASS 1993a. Includes cattle on feed. <sup>2</sup> Forest Service 1993a; BLM 1993d. Number of producers includes cattle producers who also run sheep. <sup>3</sup> These are Forest Service permits, which would not be affected by the fee alternatives in this EIS, but would be affected by portions of the management alternatives specific to the Forest Service.				

Map 3-6: LIVESTOCK PRODUCERS IN THE UNITED STATES



The roughly 4,600 sheep producers with federal permits make up about 12 percent of total sheep producers in the 16 western states. (No sheep producers in Texas have federal permits.) In the 11 western states, sheep producers with federal permits make up about 19 percent of the total producers. (See Table 3-16.)

The western livestock industry and federal forage are economically important, regionally and locally. This importance can be expressed in a variety of ways: the contribution of the livestock industry to rural economic activity, types of animals grazed on federal lands, rancher dependence on federal forage, and size of ranch operations with federal permits.

Federal rangelands are essential to the economic vitality of many family farms and ranches. Some full-time operators rely heavily on federal rangelands for livestock forage. For many operators, federal rangelands help maintain livestock operations that supplement family income. In some western communities, ranching is the main economic activity.

The importance of federal rangelands varies by the type of animal grazed. Permitted use on federal lands makes up about 7 percent of beef cattle forage and about 2 percent of the total feed consumed by beef cattle in the 48 contiguous states (Joyce 1989).

In the 16 (excluding Texas) and 11 western states permitted use makes up about 12 and 25 percent respectively of forage consumed by beef cattle. About a third of beef cattle in the West graze at least part of the year on federal rangeland (Joyce 1989).

A 1991 report by the USDA Economic Research Service states that nearly 80 percent of all pastures and rangelands grazed by sheep in 11 western states are private (Shapouri 1991). The remainder are federal and state administered. BLM-administered land makes up about 5 percent of the overall annual feed requirements for sheep operations, and Forest Service lands make up about 6 percent (Shapouri 1991).

The importance of federal rangelands to livestock production can also be measured by rancher dependency on federal forage. Average dependency of permittees on federal forage is highest in Arizona (60 percent), due to the large amount of federal land compared to private land, the availability of yearlong grazing, and the relatively high number of permittees who have Forest Service and BLM permits. Montana has the lowest average dependency (11 percent) because it has seasonal grazing and more private than federal forage. Table 3-17 shows average dependency on federal forage for permittees in each of the 13 western states.

Table 3-16: SHEEP AND SHEEP PRODUCERS IN THE UNITED STATES  
IN 1993

REGION	SHEEP AND LAMBS <sup>1</sup>	PRODUCERS <sup>1</sup>	PRODUCERS WITH FEDERAL PERMITS AND LEASES <sup>2</sup>	% OF PRODUCERS WITH FEDERAL GRAZING PERMITS
11-State Western Region	5,010,000	23,300	4,502	19%
5-State Central West Region	1,237,000	13,400	147	1%
Texas	2,000,000	8,000	0	0
TOTAL: 17 Western States	8,247,000	44,700	4,649	10%
Eastern Region	1,942,000	56,300	N/A <sup>3</sup>	N/A <sup>3</sup>
TOTAL: 48 Contiguous States	10,189,000	101,000	4,649	5%

<sup>1</sup>NASS 1993b.

<sup>2</sup>Forest Service 1993a; BLM 1993d. Many producers do not exclusively raise sheep but also run cattle.

<sup>3</sup>The number of sheep operators is not in the data base, but in fiscal year 1992 about 750 sheep were permitted to graze on National Forest System lands in the entire eastern U.S.

Table 3-17: DEPENDENCY LEVELS FOR PERMITTED HERDS IN 13 WESTERN STATES

State	Number of Permittees	Cattle % Dependent	Sheep % Dependent
Arizona	1,090	60	*
California	1,465	15	24
Colorado	2,670	25	37
Idaho	3,675	23	35
Montana	4,710	11	35
Nebraska	120	13	*
Nevada	930	36	43
New Mexico	3,000	44	49
Oregon	1,790	23	27
South Dakota	640	12	*
Utah	3,110	35	47
Washington	450	13	*
Wyoming	2,940	23	29
Does not include national grasslands. *Sheep budgets were not prepared since few sheed graze on federal land. Source: Forest Service and BLM 1992.			

Livestock operations with federal permits are on average larger than operations without federal permits. Data from the 1990 Farm Costs and Returns Survey (FCRS), which contains ranch survey information on 6,678 permittees and 49,658 nonpermittees, shows that permittees on the average have more than twice as many cows as nonpermittees, 221 cows versus 93 cows. In addition, permittees average almost nine times as many sheep as nonpermittees, 112 sheep versus 13 sheep. Table 3-18 shows the variation in herd size for permittees and nonpermittees. (See Appendix G, Economic Aspects of Supply and Demand for Livestock Forage on Public Lands.)

Table 3-18: RANCH AND HERD SIZES, PERMITTEES, AND NONPERMITTEES  
IN 1990

	Permittees	Nonpermittees
Number of Ranches	6,678	49,658
Average Herd Size (Number of Cows)	221	93
Percent of Operations with:		
Fewer than 100 Cows	33.9%	61.6%
100 to 499 Cows	56.9%	35.1%
500 or More Cows	9.2%	3.3%
Source: 1990 Farm Costs and Returns Survey (See Appendix G, Economic Aspects of Supply and Demand for Livestock Forage on Public Lands.)		

#### RANCH INCOME AND OPERATIONS

The 1990 Farm Costs and Returns Survey (FCRS) gives cost and return data for cow-calf operations (Shapouri and others 1993). The cow-calf version of the FCRS was a probability-based, stratified random sample of U.S. beef cow-calf operations in the 31 most important beef cow-calf states. The cost and return data used in this EIS is a subset of this data and represents costs and returns for permittees and nonpermittees in 10 western states (California, Colorado, Idaho, Montana, New Mexico, North Dakota, Oregon, South Dakota, Utah, and Wyoming).

Table 3-19 shows cow-calf production cash costs and returns for the average permittee and nonpermittee in the 10 western and Great Plains states for 1990. The 1990 data reveal that the average permittee operation with 221 cows had cash receipts of \$95,502. Total cash expenses were \$75,742, and capital expenditures were \$18,446, which yields net cash returns of \$1,314. BLM and Forest Service grazing fee expenses represent about 3 percent of total cash costs.

Table \_\_\_\_: Cow/calf production cash costs and returns per cow for the Western region and for permittees and nonpermittees in 10 Western and Great Plains states, 1990 (Source: Farm Costs and Returns Survey data)

Item	Non-permittees	Permittees	Non-permittees	permittees
	---Dollars per Ranch---		---Dollars per Cow---	
Cash receipts	46,205	95,502	496	431
Cash Expenses:				
Feeder cattle	4,446	1,152	48	5
Forest Service/Bureau of Land Management pasture	NA	2,768	NA	13
Other public pasture	521	625	6	3
Total other feed costs	16,635	27,050	179	122
Other variable cash expenses	8,338	21,920	90	102
Total variable cash expenses	29,921	53,515	321	245
Total fixed cash expenses	12,057	22,227	129	100
Total cash expenses	41,977	75,742	451	345
Cash receipts less cash expenses	4,228	19,760	45	86
Capital expenditures	11,462	18,446	123	83
Total, cash expenses and capital replacement	53,439	94,188	574	428
Net cash returns	-7,234	1,314	-78	3

Average per-cow costs and receipts for permittees are significantly lower than for nonpermittees. An estimate of the cost differential between permittees and nonpermittees suggests that nonpermittee costs were almost \$105 per cow higher than permittee costs. Estimated permittee receipts were \$65 lower than nonpermittee receipts.

Permittees spent more per cow for breeding stock, fences, and hired labor than nonpermittees. Nonpermittees spent more per cow overall for capital items, mainly because of increased expenditures for machinery, buildings, equipment, feed, pasture rental, purchased stocker cattle, and most other variable and fixed cash costs.

Nonpermittees purchased 10 times more feeder cattle than did permittees. This greater involvement in purchased feeder cattle by nonpermittees would by



itself increase per cow costs. But on a per hundred weight basis, permittees costs were \$10 per hundred weight lower than nonpermittee costs, and receipts per hundred weight were slightly higher for permittees.

Table 3-20 shows the costs and returns of a cross-section of sample permittee ranch operations at four different herd sizes and four levels of dependency.

Table 3-20: COW-CALF COSTS AND RETURNS FOR WESTERN STATE PERMITTED RANCHES

	PERCENT DEPENDENCY ON FEDERAL FORAGE			
	Average (36%)	Low (10.9%)	Medium (43.8%)	High (85.0%)
Herd Size (Number of Cows)	221	308	217	93
Ranch Revenue	\$ 95,502	\$ 153,313	\$ 94,178	\$ 37,705
Revenue per Cow	\$ 431	\$ 498	\$ 434	\$ 405
Ranch Cash Costs	\$ 75,742	\$ 108,616	\$ 82,718	\$ 29,333
Returns after Cash Costs	\$ 19,760	\$ 44,697	\$ 11,460	\$ 8,372
Returns per Cow	\$ 86	\$ 145	\$ 53	\$ 90
Source: USDA Farm Costs And Returns Survey (See Appendix G, Economic Aspects of Supply and Demand for Livestock Forage on Public Lands.)				

The 1990 Farm Costs and Returns Survey data shows that cash returns (revenues minus cash costs) are positive for operators at all benchmark levels of herd size and dependency on public forage. The amount of public forage provided by BLM and the Forest Service varies from an average of 10.9 percent to an average of 85 percent for the most dependent operation. Appendix G, Economic Aspects of Supply and Demand for Livestock Forage on Public Lands, gives more information on the survey data and income characteristics of the ranch operations depicted in this section.

#### PERMIT VALUE

As a general rule, all else being equal, a ranch with a federal grazing permit is worth more than a ranch without a permit. A value associated with a federal grazing permit is considered in the purchase and sale of ranch property. However, the issue of permit value must be viewed in relation to two important legal concepts.

The first concept involves the transferability of grazing permits. When a ranch property with a BLM permit is sold, the permit is transferred to the new base property owner after the transferee files a transfer application, applies for a permit, and it is determined that the new base property owner meets regulatory requirements and accepts the terms and conditions of

the permit. Forest Service procedures are similar to those of the BLM. The sellers of base ranch property give up their permit to the government, which in turn may issue a new permit to the buyer of the base ranch property, if the buyer meets all requirements for holding a grazing permit. Hence, the issuance of grazing permits creates no right, title, or interest in federal lands or resources, and a permittee can not expect to transfer a specific grazing right to another private party, even as part of a conveyance of base ranch property.

The second concept involves fluctuations in ranch value due to changes of the grazing permit. Because the value of grazing permits has been associated with the privilege to graze on federal lands, permit changes that may reduce the overall value of a ranch have not been compensable. Otherwise, the Federal Government would have to reimburse permittees for value added to a ranch due to a federal benefit.

The Taylor Grazing Act, the Federal Land Management Policy Act, grazing regulations, and case law, has consistently held that issuance of a grazing permit does not create any right, title, interest, or estate in the public lands or resources. Recognition of permit value by the federal land management agencies would allow permittees to retain the capitalized value of a public resource in their hands, a resource that has never been conveyed by the public to the permittees. Despite this, public land ranchers, bankers, and economists have asserted that a grazing permit attaches value to the base property in the context of a sale or loan value of a base property. In addition, the Internal Revenue Service considers the value of permits when property is transferred (Torell and Doll 1991).

In theory, the value of a permit at least partially reflects the capitalized difference between the grazing fee and the competitive market rate that could be charged for federal forage (Forest Service and BLM 1993a). Thus, raising the federal grazing fee to its economic value to the permittee or to a competitive market rate could change the benefit of the privilege to graze on federal land and reduce or eliminate the "value" of the permit. Altering the terms of the permit, such as the length of permit or the number of AUMs authorized, may also have this affect.

As stated in the Draft Incentive-Based Grazing Fee System report, and supported in other research, the theoretical linkage between grazing fees and permit value has not been widely observed on an empirical basis (Forest Service and BLM 1993a). Jensen and Thomas (1967) found that factors associated with grazing cattle on public lands explained only 55 percent of the variation in permit value. Similarly, Torell and Doll (1991) found that permit values have not provided a consistent estimate of the value of public land forage.

After public land grazing fees increased from \$0.33/AUM to a base value of \$1.23/AUM in the 1960s, permit values continued to increase, supporting the notion that permit values may be influenced by a variety of market forces. Torell and Doll (1991) discovered as grazing fees on New Mexico state trust lands increased, capital values of state grazing leases decreased. Yet, the lease value for New Mexico state trust land has now increased to levels comparable with BLM and Forest Service permit values.

The 1983 appraisal found permit values ranging from an average of \$140 per head month in Nebraska to \$40 per head month in Nevada (Forest Service and BLM 1986). The incentive-based grazing fee analysis found that New Mexico, Wyoming, and Idaho's average permit values range from \$36 per AUM for BLM permits in Wyoming to \$89 per AUM for BLM permits in New Mexico. BLM and Forest Service permits significantly differed in Wyoming but not in New Mexico or Idaho (Forest Service and BLM 1993a).

#### GRAZING FEE RECEIPTS AND PAYMENTS

##### **GRAZING FEE RECEIPTS: COLLECTION AND DISTRIBUTION**

Permittees are charged for federal rangeland grazing use according to the number of AUMs of forage they are authorized to use. The grazing fee receipts collected from permittees are later distributed according to legislative requirements to the following: agency Range Betterment Funds, states and counties, and the U.S. Treasury. The amounts distributed to each entity differs because of different legislative authorities.

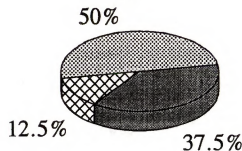
Grazing fees collected by BLM are distributed under Section 3 (grazing permits) of the Taylor Grazing Act of 1934 as follows: 50 percent to the Range Improvement Fund to be appropriated the following year, 12.5 percent to the states where the fees were collected, and 37.5 percent to the U.S. Treasury. Under Section 15 (grazing leases) of the Taylor Grazing Act, 50 percent of the fees are distributed to the Range Improvement Fund and 50 percent are returned to each state where the fees were collected. As a matter of policy, monies from the Range Improvement Fund are returned to the BLM district where they were collected. (See Figure 3-8, Distribution of Grazing Fee Receipts: BLM.)

On National Forest System lands, grazing fee receipts are distributed as follows: 50 percent to the Range Betterment Fund to be appropriated the following year, 25 percent to the states for distribution to the county of origin for roads and schools, and 25 percent to the U.S. Treasury. Half of the funds in the Range Betterment Fund are returned to the Forest Service region of origin, and half are returned to the forest of origin. (See Figure 3-9 Distribution of Grazing Fee Receipts: Forest Service).

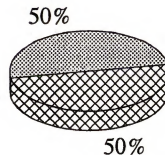
On the Forest Service-administered national grasslands grazing fee receipts are allocated as follows: up to 50 percent of fee can be waived if the permittee or grazing association will be making rangeland improvements, 12.5 percent to the states for distribution to the county of origin for roads and schools, and 37.5 percent to the U.S. Treasury. (See Figure 3-9, Distribution of Grazing Fee Receipts: Forest Service.)

Figure 3-8

## Distribution of Grazing Fee Receipts BLM



Inside Grazing  
Districts



Outside  
Grazing Districts




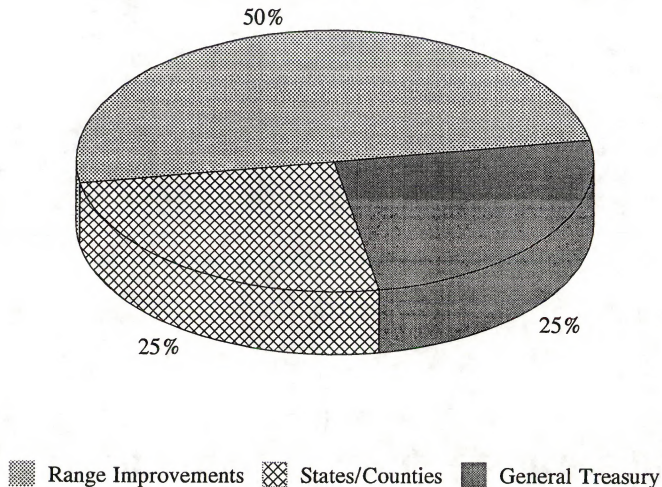
 Range Improvements     States/Counties     General Treasury



Figure 3-9

## Distribution of Grazing Fee Receipts National Forest System



BLM grazing fee receipts totalled \$17.4 million in fiscal year 1993 (October 1, 1992 through September 30, 1993). Forest Service grazing fee receipts totalled \$10.7 million in calendar year 1991, the most recent year for which data has been completely collected. (Forest Service receipts do not include Oklahoma and Texas). Grazing fee receipts collected by BLM and the Forest Service totalled \$28.1 million. Table 3-21 shows the distribution of grazing fee receipts by category for agencies.

Table 3-20: DISTRIBUTION OF GRAZING FEE RECEIPTS

	BLM	FOREST SERVICE	TOTAL
Range Betterment Fund	\$ 8,685,000	\$ 5,359,000	\$ 14,044,000
Payments To States And Counties	\$ 3,216,000	\$ 2,680,000	\$ 5,896,000
U.S. Treasury	\$ 5,492,000	\$ 2,680,000	\$ 8,172,000
Totals	\$ 17,393,000	\$ 10,719,000	\$ 28,112,000
Source: BLM 1993e; Forest Service 1993d			

#### PAYMENTS-IN-LIEU-OF-TAXES (PILT)

Under the Payments-in-Lieu-of-Taxes Act of 1976 (the PILT Act), Congress pays local units of government (usually counties) to compensate them for reduced local property tax base resulting from the presence of certain federal lands. The PILT payments are meant to supplement other federal revenue-sharing payments--such as grazing fee receipts--received by local governments.

A county's PILT may be calculated by two methods, but the amount paid to the county is the higher value under either calculation, subject to payment ceilings. A county's population, amount of federal entitlement acres, and certain payments made to the state and county by the Federal Government are the variables that determine which method would yield the higher payment to the county. Depending under which formula a county's PILT falls, increases in grazing fee receipts could cause a corresponding decrease in PILT. (The reverse is also true.)

A more detailed description of the relationship of PILT to grazing fee receipts is contained in Appendix H, Payments in Lieu of Taxes.

## **SOCIAL CONDITIONS**

The Socioeconomic Conditions section focuses on the general attitudes, beliefs, values, and social well-being of the affected public, selected western counties, and some national perspectives. Because the affected public is large, it was divided into three groups: ranchers, recreationists and individuals, and people concerned about the environment. The Ranchers subsection was written to review how ranchers are directly and immediately affected by changes in rangeland management. Individuals within most groups or communities have various, often opposing, opinions about the issues on rangeland management.

### **DEMOGRAPHIC AND SOCIAL TRENDS IN THE WEST**

In 1990, the population in the 17 western states was 76,650,728. California has the largest population with more than 29 million. North Dakota, South Dakota, Wyoming, and Montana each had fewer than a million people. Population densities vary from less than 5 people per square mile in Wyoming to nearly 200 people per square mile in California. The percent of the total population in rural areas varies from 47 percent in Montana to 8 percent in California. Though the total 17-state population grew by 20 percent between 1980 and 1990, individual states varied. North Dakota and Wyoming's population declined, whereas Arizona and Nevada's population increased by more than 35 percent.

In the rural West population and social trends tend to respond to unique issues. Many rural areas are experiencing a significant increase in population after decades of stability or decline. Other rural areas continue to lose population due in part to the outmigration of young people who leave for advanced education, military service, and employment. In addition to the above trends, some rural areas are subject to the population and employment boom and bust cycles of oil and gas and other mineral development.

The West also has major cities, such as Denver, Phoenix, Portland and Seattle, that have experienced significant growth over the last few decades. Serving as headquarters for environmental groups, these cities have many residents that are concerned about the environment.

The movement of people and jobs into some rural areas began in the 1970s and is expected to continue into the 21st century. The migration turnaround reflects a reversal of the rural-to-urban migration pattern in most of the U.S. before the 1970s. Intermountain valleys, such as Steamboat Springs, Colorado; Salmon, Idaho; and Missoula, Montana, typically experience immigration. In scenic areas, particularly those suitable for recreation, ranches are being sold for recreation uses or

subdivided for homes. Some immigrants buy small lots to ranch or farm but do not depend on an economic return from the lot. Western rural areas are moving from a long-term economic dependence on agriculture or mining to recreation and tourism. The population immigration has mixed rural and urban values and increased contacts between rural natives and exurbanites whose beliefs and values challenge the existing ways of life. Rural natives may feel they have lost control of their community, making it a less desirable place for them to live.

Other rural areas have continued to lose residents in the last decade. These communities may be having difficulty maintaining their local businesses and such services as schools and health care. Residents are concerned about the economic survival of their communities and the preserving their current lifestyle. The economic survival of these communities and ranching families may depend on how well they diversify to compete in the 1990s and beyond.

In some areas, ranching families are diversifying their income by offering tourist-related attractions, including bed and breakfasts, trail rides, livestock drives, guided wildlife tours, and working dude ranches. Others can stay on their land because family members work in jobs outside the family ranching business to supplement their ranch income.

Another important trend is the increasing popularity of the West for recreation. The demand for the types of activities most available on federal lands is growing faster than for other activities (Forest Service 1989a). These activities include downhill and cross-country skiing, backpacking, visiting prehistoric sites, and day hiking. Many western communities have problems maintaining access to private and federal land if access through closed private lands is required for recreation. Access is often prevented if ranches are purchased for recreation and recreation homesites; ranchers lease their land to outfitters and close it to others; or ranchers are attempting to avoid vandalism, litter, or open gates.

### RANCHERS

The values, attitudes, and beliefs that ranchers have developed and incorporated into their social structures and self-images should be recognized to understand how Rangeland Reform '94 could affect ranchers. This section discusses some of those social characteristics, first from a qualitative perspective and then from a quantitative perspective. Ranching has a variety of characteristics, depending on factors such as location, the number and type of livestock, management, distance from the nearest community, and financial structure.



Fowler and others (1993) published research on 4,336 ranchers in 11 western states. Although their research does not represent all ranches with federal permits, it generally describes the ranching lifestyle, employment, and rancher interactions with the western public. The ranchers surveyed were members of livestock producer organizations, and nearly 11 percent of all federal permittees, who accounted for 35 percent of all federal allocated forage. The respondents represented a broad range of ranch size categories. Twenty-six percent of the respondents had herd sizes of less than 100; 42 percent had herds of from 100 to 350; 24 percent had herds of from 351 to 1,000; and 7 percent had herds larger than 1000. In a comparison of herd size data to other data, operations with the largest herd size and most AUMs appear to be overrepresented.

Ranching is a way of life for many respondents. The average respondent was 55 years-old and worked on the same ranch for 31 years. At the time of the research, the average ranching family had been in the business for 78 years and in the same state for 68 years.

The average ranch had nearly seven people associated with it, not including children. An average of two of the seven people were unpaid family members, and another family member worked off the ranch, contributing an average of 23 percent of the household income. The range of family members working off the ranch was from Montana's average of less than one person--who contributed 11 percent of household income--to Arizona's average of two people, who contributed 53 percent of household income. These responses reflect the growing dependence on off-the-ranch income. Many ranches, especially small ones, would not remain economically viable without off-the-ranch income.

Respondents estimated that they spend about \$19,000 annually in local communities, showing that some local businesses depend on ranchers.

Respondents reported that they spend an average of 9 days in land planning meetings annually. They also said that the public visits federal allotments an average of 950 times annually for recreation.

When asked about what they would do if livestock grazing were prohibited on federal land, 57 percent said they would operate on a smaller scale, 18 percent said they would retire, 9 percent said they would move out of state, 16 percent said they would begin a new occupation, and 21 percent said they would convert their land into real estate development.

- ♦ Idaho, California, Washington and Wyoming reported the highest percentage of ranchers who would operate on a smaller scale; Arizona and Montana reported the lowest.



- ♦ Over one-third of the respondents in Arizona, California, and Colorado reported that they would convert their land into real estate; less than one-tenth of Montana's respondents agreed.

A survey conducted by Saltiel (1991) provides information on the attitudes of 1,084 Montana farmers and ranchers toward grazing fees. Sixty-seven of the respondents opposed raising grazing fees, and 85 percent said increased grazing fees would harm them. But 56 percent of the ranchers without federal permits favored raising grazing fees. Nearly two-thirds of ranchers without federal permits said that a fee increase would not affect them, while 10 percent said that a fee increase would benefit them. A key point of Saltiel's survey is that most western ranchers do not have federal grazing permits and would not be affected by an increase in grazing fees.

Qualitative descriptions give us a better perspective on lifestyles, attitudes, values, and beliefs. The remainder of this section describes these factors. Some of the discussion on attitudes is based on comments from ranchers and livestock grazing associations about Rangeland Reform '94.

Whether they are American Indian, Hispanic, Anglo, or other races, ranchers tend to share many social characteristics. According to Simpson (1975), ranchers perceive themselves as personifying traits such as fair play, honesty, and independence. They believe they are rugged and enduring individuals who are not afraid of hard work. They take great pride in being independent but willingly work to help neighbors when the need arises. Many Americans also hold similar perceptions about these rancher characteristics.

But as Jobes (1986) notes, "Outsiders . . . confuse the style, or image that they perceive with the underlying structure. Ranchers err because as they participate in the myth, they fail to understand the inconsistencies between what they believe and what they do." Some of the personal traits and lifestyle patterns of cowboys/ranchers have been romanticized and may tend to exist less in reality than in the minds of ranchers and other Americans.

According to Jobes (1986), ranchers like to maintain control of their world on an individual basis. They would avoid selling their ranches, regardless of lost income, to keep a sense of success and their lifestyle. And their remorse would involve more than retiring from a job.

Other researchers also found that ranchers are unhappy about outsiders exerting control over their operations. Emmerich and others (1992) conducted an in-depth interview with the Pearce family, which has owned and operated the T Quarter Circle Ranch

in northern Nevada since 1913. The family was under stress and concerned about ranches having to deal with influence from government agencies and other federal land users. Family members wanted to manage their allotments in a wise and sustainable manner and knew they had to work with federal, state, and county governments and other organizations to do so. The researchers found the Pearce family somewhat stressed because of its independent nature and desire to be self-sufficient.

The ranching community is living in a socially contentious setting. Cool (1992) pointed out the prevalence of current slogans such as "Cattle free-free by '93" and the countering statement by cattlemen of "Cows galore in '94" as typifying the conflicting nature of today's setting. The romantic notion that cowboys love a good fight just adds to the stress felt by ranchers. Some ranchers have made innovative changes in their operations to deal with growing stress.

Most ranchers face increasingly stressful social situations as they try to balance their traditional lifestyles with demands from environmentalists and recreationists. Ranchers commented during the Rangeland Reform '94 scoping period about their concern for social and economic impacts to individual ranches and local communities. They are concerned about the whether they can continue local ranching customs and culture. They believe Rangeland Reform '94, combined with other natural resource policies, will eliminate livestock grazing on federal lands. Ranchers said the new policies will damage the relationships between federal land management agencies and westerners.

Ranchers said they already have a slim profit margin and that higher grazing fees will cause economic hardship. Furthermore, loans may be harder to obtain, and they will be forced to lay off employees, abandon leases, or subdivide their land. Ranchers believe that the overall consequences of Rangeland Reform '94 would be harm to their regional economies from ranch bankruptcies or sales, and a decreasing value of recreation and tourism (as influenced by ranching traditions and open space).

Ranchers believe that livestock grazing on federal land is vital to the economic stability of rural communities. Effects to small communities include decreased patronage and possible closings of small businesses, less funding for county and state schools and health care, and increased pressure on social services to assist the unemployed and poverty stricken and to train rural residents for new careers and lifestyle options.

#### COUNTIES AND COMMUNITIES

Rural communities are facing many challenges. Residents of rural areas believe they are engaged in a struggle to maintain control of their community's character rather than to control the

frontier as in the past. Many groups want the traditional rural character: newcomers, old time ranchers, and communities that are losing residents or gaining residents but losing their rural character. For example, in Gunnison County, Colorado, the County Stockgrowers Association has joined forces with the High Country Citizens' Alliance to control their community's growth characteristics.

This section describes three communities, (one is hypothetical) that are good examples of the communities near federal rangelands. The hypothetical community depends on agriculture and federal grazing and has been losing residents since the 1970s. Eastern Montana, Wyoming, and Colorado have many examples of this type of community. For instance, nearly 60 percent of Montana's 56 counties lost more than 3 percent of their population between 1980 and 1990.

The other two communities are Gunnison, Colorado, and Rawlins, Wyoming. Gunnison County Colorado is an example of a rural area that has experienced the immigration of exurbanites and recreation development typical of many intermountain valleys in the West. Rawlins and its surrounding Carbon County have been historically associated with ranching and mining. Low immigration of exurbanites and recreation development has been experienced in this area.

These descriptions provide a basis for the analysis of community effects associated with the alternative proposals being considered in this EIS.

#### **THE TYPICAL SMALL COUNTY AND COMMUNITY**

This is a hypothetical example of typical small counties and communities in the West. The information is based on interviews completed for two of BLM's recent environmental impact statements (BLM 1992j and BLM 1993a).

A sparsely settled, isolated area on the high plains, the county was settled in the late 1880s as the railroad brought in new settlers. Ranching soon became and has remained the most important economic activity. Historically, population declines have been due to drought, mechanization, and the trend toward larger ranches. This county has not experienced the economic diversification of mineral, resort, or other development experienced by many other rural western areas.

The county's population has declined steadily since 1940. Its 1990 population of 1,200 was 20 percent less than its 1980 population. The county has one incorporated community, the county seat, which had 700 residents in 1990, a decline of 15 percent since 1980. The county and community population declines are projected to continue into the 21st century.

Residents believe the area is a good place to live and meets their personal needs. The qualities residents like the most are the friendly people, the small close-knit community, the uncrowded area with natural beauty and wide open spaces, the unhurried lifestyle, and the plentiful hunting and fishing opportunities. Residents believe their community is an excellent place to raise children.

Ranchers are well integrated into the community. They play major leadership roles and participate in community activities. Some ranchers live in town part of the year because their children attend the county high school there and it is difficult to drive into town daily in the winter.

Area residents are highly concerned about their community's economic survival and the preservation of their current lifestyle. Whole families have left the area because they lack alternative employment if their ranch or business fails. The population loss has been followed by more business losses, resulting in a decreasing tax base to support local services. Resident concerns about the future include loss of jobs, population, funding for community services, and the high demand for geriatric services.

Area residents are actively pursuing economic development related to recreation but have not been successful because of the small population base, limited access to capital, and distance from transportation networks and other recreation attractions. To date, most recreationists from outside the local area come in the fall to hunt.

Some ranching families are diversifying their income by offering tourist-related attractions such as outfitting for hunters and working ranch experiences. Others supplement their income by obtaining employment outside their ranching business.

All residents, not just ranchers, believe that ranching is important. Livestock grazing is viewed as the most important and most threatened use of federal land. A major concern residents have is change being forced on them from outsiders, with pressure to reduce livestock grazing. Residents believe that the Federal Government should consider social and economic impacts to local communities when making land use decisions.

### Carbon County, Wyoming

This discussion was developed from information provided by the Carbon County 2000 Project (Worthington, Lenhart and Carpenter, Inc. 1993a; 1993b; 1993c), the Wyoming Community Assessment Program, the *Green River-Hams Fork EIS* Round 1 (BLM 1980b), the *Seven Lakes Grazing EIS* (BLM 1978), and interviews with area residents.



Carbon County developed and its population grew as the railroad entered the area. The railroad stimulated industries such as mining, sheep and cattle ranching, and timber harvesting. The route for the railroad was designed to support the county's potential coal industry. Carbon County experienced a 64 percent increase in population in the 1980s due to developed uranium, coal, and oil and gas industries. Between 1980 and 1990, the population declined by 24 percent to 16,659 as employment in mining industries declined. Rawlins, the county seat, has the largest community with a population of 9,380 in 1990.

Carbon County ranchers value independence and mutual neighborliness and believe they have the right to control federal land, with or without the Federal Government. They are concerned that their ranching lifestyles will be lost under potential federal policies. They believe that the Federal Government is not concerned about local problems and that multiple use management, including livestock grazing, is needed on federal land to supply regional and national markets and maintain the area's economy. The townspeople generally share the same values as rural residents.

Most ranch families financially depend solely upon their ranches. Some ranchers offer hunting and guide services, and a few offer working dude ranch experiences. When the mines needed workers, more families supplemented their ranch incomes with off-ranch employment.

A few ranches in southern Carbon County have been purchased by people from other counties for recreational purposes. More recently, people have moved into the area and lived on ranches they have purchased. Some people from other states have bought local ranches but have not subdivided them. Recreation is important to local residents and people from outside the area, mainly Coloradans, who come to hunt, fish, and camp.

Rawlins has diverse employment associated with BLM, mining, the railroad, a prison, and a refinery. Agriculture is considered important and is viewed as one of the more stable industries in the area. Some of Carbon County's multiple-generation ranch families live in Rawlins. Describing Rawlins as a friendly community, residents love the area and its surrounding natural environment.

Even though the economy has improved slightly since the 1980s, Rawlins residents are concerned about the number of businesses that left during the 1980s and the effect of the declining tax base on town and county services and infrastructure. Residents want diverse businesses and a stable economy. A master plan is in progress for redeveloping the downtown area. Groups are working to attract visitors by emphasizing their town's historical, archeological, and geological features. Carbon



County also has a grant to aid in diversifying the economic base of its communities, especially those likely to be economically affected by federal or private sector land management decisions. Changes in federal land management practices are of particular concern since more than half of the county consists of federal land scattered within private land.

Community and rural residents are concerned about the future of agriculture and the effects of reforming rangeland management. A local multiple-use group, the Carbon County Coalition, was formed in 1991 to address concerns about the county and community economy, the public's misunderstanding of the ranching industry, and other issues. The coalition's members are associated with recreation, minerals, environmental concerns, timber, banking, ranching, wildlife, and other fields.

The coalition believes many demands for reforming rangeland management have been met in Carbon County and that the public mistakenly believes that the rangeland is in poor condition and cannot be easily persuaded otherwise. The coalition also believes that grazing fees should be set locally according to rangeland conditions. Their concerns about reforming rangeland management include the following.

- ♦ Small producers will be unable to maintain their operations with a grazing fee increase.
- ♦ As ranchers go out of business, their land will be subdivided, and homes will be built in sensitive areas such as riparian zones.
- ♦ More fencing will be required if ranchers choose not to use federal lands in checkerboarded areas (areas of mixed land ownership in a checkerboard pattern) and as land is subdivided for homes (and the fencing will hamper wildlife migration).
- ♦ Subleasing regulations.
- ♦ Loans will be more difficult to obtain.
- ♦ Loss of land stewardship with increases in out-of-area ownership will lead to frequent changes in land ownership.

#### Gunnison County, Colorado

Historically, Gunnison County's economy has depended on mining, ranching, and tourism. A silver boom in 1879 brought many miners to the area, and when the silver began to play out in the early 1880s, many people who had supplied the miners turned to ranching. As ranching was developing in the area, large coal mines were also drawing many people to the county, especially to

Crested Butte and its surroundings. Coal mining, which began around 1880, was significantly reduced in 1952, causing high unemployment and outmigration. The 1950s and early 1960s were difficult for many residents due to the 1952 mine closures and the withdrawal of the railroad in 1955.

The county's economy improved when the Bureau of Reclamation built three dams on the Gunnison River between 1965 and 1972. Increasing tourism and the establishing a ski resort at Crested Butte also contributed to the county's stability (Vandenbusche 1993).

Besides the ski resorts, other sources of recreation include Maroon Belles and Collegiate Peaks, two wilderness areas in the Gunnison County. The Black Canyon of the Gunnison is one of the Nation's more scenic areas. The Gunnison River's upper reaches are reputed to be among the top fly fishing streams in the U.S. The largest body of water in Colorado, Blue Mesa Reservoir, offers fishing, water skiing, jet skiing, and boating.

Gunnison County's population grew by more than 40 percent between 1970 and 1980, followed by a decline of 4 percent between 1980 and 1990. Most of the new residents are California immigrants. Many are white-collar professionals who can buy 40 acres and a \$150,000 house and want the county's quality of life. Some see the area as their seasonal home. Since 1990, tourism and recreation industries increased the county's population and employment.

In addition to California immigrants, rural counties of the Colorado Plateau are also experiencing recreation-related growth as residents of bigger cities within the area seek to get away from some of the features of city life (Westbay 1993). Recently Gunnison County has grown mostly in Crested Butte and Mt. Crested Butte, somewhat as a result of skiing. Crested Butte, however, does not depend on skiing as much as Mt. Crested Butte. Neither town strongly depends on ranching (Hess 1993).

Businesses in the town of Gunnison have supplied area ranchers for nearly 100 years. Ranchers are socially, politically, and economically important to the community. Some ranchers with smaller operations supplement ranch income by working at other jobs in local communities. Residents believe that ranchers play a vital role in preserving the area's open spaces and thus its high scenic quality. When ranchers sell their operations, many residents feel sad that the area is becoming urban. Most residents want the ranching lifestyle to survive (Westbay 1993).

Gunnison County residents hold strong opinions on a variety of current issues. A citizen's coalition is pushing for a growth moratorium in the county because they are concerned about the rate of growth and the subdivisions that have been developed.

Other residents view growth as beneficial because they depend on construction or tourism for their livelihood.

In general, though, the community supports ranching. Most ranchers have good relationships with recreationists and with those interested in protecting wildlife (Westbay 1993). Some ranchers even maintain biking and hiking trails that cross their base properties so that they are more usable by recreationists.

Permittees in Gunnison County are increasingly asking why they are being targeted for increased regulation of their activities. From their perspective, developments that affect water quality most affect ecosystems. Many ranchers believe that federal agencies are not regulating developments and recreation as aggressively as livestock grazing. Because of the unsettled condition surrounding the grazing issues, ranchers are concerned about the future quality of their lifestyle, especially as some ranches continue to be sold and subdivided into small parcels (Spahn 1993).

#### **NATIONAL ATTITUDES**

Rangeland Reform '94 is just one aspect of a broader debate on environmental issues and resource management in the U.S. and around the world. According to the Forest Ecosystem Management Assessment Team (1993), "This growing concern with the environment, from the international to local levels, appears linked to some fundamental structural changes taking place in industrialized societies. Shifts in education levels, population distribution, and composition and make-up of the labor force all combine to bring increased concern with issues related to the quality of life and other types of personal attitudes, including natural resources and the environment."

According to Stankey and Clark (1991), social values for lands and natural resources take many forms:

- ◆ Commodity values: timber, rangeland forage, minerals
- ◆ Amenity values: lifestyle, scenery, wildlife, nature
- ◆ Environmental quality values: air, water quality
- ◆ Ecological values: habitat conservation, sustainability, threatened and endangered species, biodiversity
- ◆ Public Use values: subsistence, recreation, tourism
- ◆ Spiritual values: sacred places

In the past, natural resource management emphasized commodities. The emerging interests in other values has forced a reevaluation of old management practices. Stankey and Clark's (1991) report states, "A new focus on the part of the public involves a shift from commodities and services to environments and habitats. The public is much more concerned about forests as ecosystems than

they have been previously and is more concerned with having access to decisions about them."

A national study of attitudes toward rangeland management (Steel and Brunson 1993) included a random survey of more than 1,300 adults nationwide, asking about attitudes toward federal land management of livestock grazing and a variety of related issues. In this study, two-thirds of the respondents said that ranchers should pay more to graze their livestock on federal rangelands; 14 percent of the respondents disagreed. Twenty-five percent of the respondents said that federal rangeland management should emphasize livestock grazing; 43 percent disagreed. More than a third of the respondents agreed that livestock grazing should be banned on federal land; 21 percent disagreed. At least 75 percent of the respondents said that wildlife should be better protected (86 percent), fish (76 percent), and rare plant communities (75 percent) on rangelands. About 40 percent of respondents said that the economic vitality of local communities should be given the highest priority when making decisions about federal rangelands; a similar proportion disagreed.

Responses from people living in the eastern and western parts of the U.S. were similar. Westerners (29 percent) were slightly more likely than easterners (23 percent) to believe that federal rangeland management should emphasize livestock grazing. Unexpectedly, western respondents were likely to disagree with the statement that the economic vitality of local communities should be given the highest priority when making decisions about federal rangelands (46 percent versus 37 percent for easterners). Families depending on farming or ranching for income were likely to favor current rangeland practices.

Dalecki and Coughenour (1992) found national, widespread support for traditional agrarian values. In a national sample of adults, they found the following beliefs to be strongly supported by rural and urban populations: family based agricultural operations are very valuable, agricultural lifestyles are natural and good, and the self-reliance associated with agriculture is important.

Ranchers are concerned that people who have no experience or thorough knowledge of the local areas are the ones pushing to change rangeland management.

Rural and urban attitudes differ. The Report of the Forest Ecosystem Management Assessment Team (1993) concluded "In general, rural residents are more likely to support commodity-based management of federal forests while those in urban areas are more likely to support ecosystem-based management." But the same document also suggested that a diversity of values toward natural resource issues is found among residents of rural and



urban areas. These conclusions are probably also true of attitudes toward rangeland management.

#### PUBLIC INTEREST GROUPS

The group of Americans potentially affected by Rangeland Reform '94 is large and decentralized. In this analysis the public has been classed into three groups: ranchers, recreationists, and environmentalists.

Though recreationists may be less directly affected than permittees, effects have been documented. Research on the effects of participation in outdoor recreation show such benefits as improved physical and mental health, increased self-esteem, and an enhanced sense of well-being and spiritual growth. Participation in outdoor activities can also increase family interaction and foster cohesion. Benefits to communities include increased social solidarity, satisfaction with community life, and increased ethnic and cultural understanding (Forest Service 1989b).

The same report (Forest Service 1989b) also states that some of the major issues facing recreation today include protecting resources and open space, acquiring more land and water to meet anticipated demand, resolving conflicts among diverse users, and addressing the need for more access to outdoor recreation areas.

During the scoping period, environmental groups said that they support steps to improve rangeland. Attitudes of these groups differ. Some support Rangeland Reform '94. Others believe that Rangeland Reform does not go far enough. These groups suggest ways to correct abuses of the past and gaps in the new proposal where grazing should be allowed. They stress that fragile or damaged rangelands, as well as lands with values reduced by the presence of livestock, should be declared off limits to grazing.

Environmental groups said that the economics of ranching is less important than the ecology of ranching. They believe the grazing fee system used for federal lands does not account for all costs to public resources, undervalues the grazing privilege in relation to local fair market value, and tends to encourage overemphasis of grazing programs at the expense of other legitimate federal land uses. These groups said the protection and restoration of native plants and animals and riparian areas should be most important and guide management decisions.

Groups and people with environmental concerns generally support the elimination of grazing advisory boards. They believe resource advisory councils would provide better opportunities for the public to voice opinions.



These groups support the development of standards and guidelines. But they voice concern that without means for enforcement and implementation, the standards and guidelines would be worthless. They said regulations are needed that force action. Some favor the No Grazing alternative simply because they do not trust BLM to administer livestock grazing in a sound ecological manner.

With a variety of interests, such as snowmobiling, hiking, and hunting, many recreationists believe that Rangeland Reform '94 would benefit the recreation industry and create economic growth with business opportunities, employment, and income for local communities. They also believe that Rangeland Reform would enhance other industries, such as commercial fishing, by improving aquatic habitats. Some recreationists, however, do not believe that rangeland management needs to be reformed.

For example, some recreationists want to see grazing advisory boards abolished and prefer resource advisory councils to ensure representation from the local recreationists. Other recreationists believe grazing advisory boards should remain unchanged to let people who understand the direct impacts to the livestock industry make recommendations to BLM.

Most recreationists support Rangeland Reform '94. But some want stricter policies by urging reduction or complete removal of grazing privileges on lands that are fragile and damaged. Recreationists who want cattle removed from federal rangeland believe cattle are destructive, the byproducts of grazing are disturbing, and the fees do not cover damage to federal land. Generally, recreationists living closer to the communities affected by federal land management decisions have less extreme opinions on removing livestock from federal land.

Some recreationists believe grazing fees should be increased, while others do not since higher fees could put ranchers out of business and affect hunting privileges. One spokesman from a sportsmen's association stated, "Subdivisions could replace historic ranches, or wealthy people will buy the lands and no one will be allowed to use them. We depend on the ranchers, especially during low forage years, to feed a lot of wildlife. If you start putting these guys out of business, we could be in trouble."

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**CHAPTER 4**  
**ENVIRONMENTAL CONSEQUENCES**

Chapter 4 describes effects on the human environment of the Proposed Action and other alternatives described in Chapter 2.

Environmental consequences can be categorized and presented in many ways. Some are the direct effect of implementing an action. Others are more indirect, occurring later or further away. Some tend to be short term. Others last longer. Some effects are adverse. Others are beneficial. Some are mainly physical or biological. Others are economic or social. This chapter discusses environmental consequences in all these ways.

The Proposed Action and alternatives analyzed in this chapter consist of many potential changes to rangeland policies, regulations, and grazing fee formulas. Many of these potential changes would be largely administrative and would have little direct effect on the environment. They are aimed at improving agency efficiency and effectiveness, increasing consistency within and between agencies, or meeting other nonenvironmental objectives or public policies. They would often, however, result in indirect or secondary effects on physical, biological, social, or economic aspects of the environment. Chapter 4 also discusses these types of effects.

**CUMULATIVE EFFECTS**

The regulations for implementing the National Environmental Policy Act (NEPA) require federal agencies to analyze and disclose cumulative effects--effects that result from the incremental impact of an action "when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR 1508.7)

The Proposed Action and alternatives are broad in scope. Each consists of many actions, including changes to BLM and Forest Service rangeland management policies, regulations, and the grazing fee formula. As a result, this EIS is programmatic, addressing environmental consequences that are correspondingly broad in scope. Furthermore, neither the Proposed Action nor the alternatives would be implemented in a vacuum. Implementation would be interwoven with many other actions, events, and trends taking place at local, regional, national, and international levels. For example, actions on federally administered lands may have beneficial or harmful impacts to systems on private lands. The analysis in Chapter 4 strives to consider these changes.

1 For example, livestock grazing on federal lands is not the only  
2 factor that affects rangeland vegetation. Climate, recreation and  
3 wildlife use, management practices on adjoining lands, and the  
4 introduction and spread of alien weeds are also key considerations.  
5 The future of rangeland vegetation cannot be predicted by  
6 considering changes in livestock grazing management alone.

7 Similarly, BLM and Forest Service rangeland management policies and  
8 grazing fees are not the only factors that affect the western  
9 livestock industry and western rural communities. Also of major  
10 importance are regional population growth; changing demographics,  
11 lifestyles, property values, and agricultural subsidies; economic  
12 competition and restructuring; and changing laws, policies, and  
13 practices being implemented by other federal and state agencies.  
14 Population growth and demographic changes in the West and in many  
15 western rural communities will continue to transform rural  
16 economies. Population growth in many rural communities, while  
17 contributing to economic growth and diversification, will continue  
18 to diminish the relative importance of agriculture in those  
19 communities. But economic diversification also offers more chances  
20 to earn off-ranch income and helps families maintain their ranches.  
21 Communities that continue to lose population and whose economies  
22 are in decline may be further strained by decreases in livestock  
23 production.

24 Land use changes, such as increased recreation use and subdivision  
25 of privately owned ranchlands, are both a cause and a result of  
26 trends in agriculture. Economically marginal ranches might be  
27 encouraged to sell to developers where the demand for rural  
28 homesites is increasing. As a result, agricultural production  
29 would further decline in such areas. Increased outfitter and guide  
30 activities, which encourage more recreational use of rural areas  
31 and offer more income-earning potential to ranches, might  
32 contribute to population growth and in turn accelerate changes in  
33 land use away from agriculture.

34 Demographic and land use changes might increase or decrease a  
35 community's tax base. Where economies are stable or growing, the  
36 tax base would likely be stable. Where populations continue to  
37 decline or livestock production significantly declines, the tax  
38 revenues might continue to decline.

39 Changes in land use might accelerate the loss of access to federal  
40 land and access to and across private land. Reduced access might  
41 increase the demand for land adjustments (such as land exchanges)  
42 by BLM and the Forest Service to obtain more access to federal  
43 lands.

44 The elimination of the Federal Government's wool subsidy may  
45 accelerate the decline in sheep production in the West and might  
46 cause many sheep producers to sell their ranches. However, the  
47 demand for forage on public lands, national forest lands, and

1 national grasslands is expected to remain constant in the long run.  
2 Other government policies, such as trade agreements aimed at  
3 reducing international trade barriers, would also affect the  
4 industry. The expiration of Conservation Reserve Program (CRP)  
5 contracts beginning in 1996 might encourage the use of croplands  
6 for pasture, thereby increasing the forage for livestock.

7 The protection and recovery of federally listed species and their  
8 habitats--for example, anadromous fisheries in the Pacific  
9 Northwest and desert tortoises in the Desert Southwest--are also  
10 likely to significantly change the way livestock grazing is managed  
11 on federal lands. Future activities designed to avert habitat loss  
12 and endangered species listings in the long term might help sustain  
13 livestock production.

14 Similarly, best management practices for livestock grazing--  
15 prompted by the need to comply with the Clean Water Act--are being  
16 developed and implemented in several western states and will also  
17 lead to important changes.

18 A fundamental assumption of this analysis is that with or without  
19 BLM and Forest Service range reform the demand and need for changes  
20 in rangeland management will continue. These changes are likely to  
21 result in declines in livestock use on federal lands over the long  
22 term.

## 23 IMPACTS COMMON TO ALL ALTERNATIVES

### -- AIR QUALITY

25 The most significant impacts to air quality under all management  
26 alternatives for both agencies would result from vegetation  
27 management projects. Impacts could include smoke from prescribed  
28 burning; moderate increases in noise, dust, and exhaust from  
29 manual and mechanical vegetation treatment; and moderate noise  
30 and slight chemical drift from aerial herbicide spraying. Under  
31 prescribed burn plans particulate matter can be minimized and  
32 areas burned so that particulates will not affect populated  
33 areas. These impacts were described in detail in the BLM  
34 Vegetation Treatment EIS (BLM 1991a). Impacts would be temporary,  
35 small in scale, and dispersed throughout the West. Combined with  
36 standard management practices (stipulations), these factors would  
37 reduce the significance of potential impacts.

38 Potential air quality impacts are assessed before projects are  
39 implemented. To determine changes that might result from their  
40 proposals, the agencies review site-specific plans for compliance  
41 with laws and policies, and inventories air quality. More  
42 mitigation may be added to project proposals to further reduce  
43 potential impacts. These procedures assure that the agencies'  
44 practices conform to federal, state, and local air quality  
45 regulations. For example, prescribed burning must comply with

BLM Manual Sections 9211.31(E)--Fire Planning--and 9214.33--  
Prescribed Fire Management--to reduce air quality impacts from  
smoke. Prescribed burns must also comply with state and local  
smoke management programs, which specify the conditions under  
which an area may be burned.

Although the precise air quality impacts from rangeland  
management alternatives cannot be measured, any practice that  
increases vegetation cover and growth helps reduce wind-blown  
dust (particulate matter). But high particulate levels should be  
expected in arid areas with periodically dry lakebeds or soils  
high in silt.

#### CLIMATE

Throughout most of the study region, precipitation is the main  
limiting factor for the timing and amount of vegetation growth.  
Although temperatures also influence growth, warming temperatures  
typically dictate when growth begins, not whether it would occur.

By comparing the short-term climatic situation to long-term  
climatic conditions, rangeland managers can adjust the timing and  
amount of allowable grazing before issuing permits. For example,  
dry soil conditions resulting from multiple years of below normal  
precipitation would require significant subsurface recharge  
before significant vegetation growth is likely to occur.  
Similarly, if the soil profile is hydrated during the dormant  
season, significant plant growth may still occur in the face of a  
relatively dry spring. Other weather and climate relationships  
determine the occurrence and timing of seed development and root  
growth.

#### SPECIAL STATUS SPECIES

Both BLM and the Forest Service are committed to managing for the  
recovery of threatened or endangered species. Under all  
alternatives, species recovery plans would continue to be  
implemented. Therefore, the alternatives would differ little in  
their impacts to federally listed species, except where one or  
more might indirectly expedite recovery and improve habitat to  
minimize future listings.

Later actions under the alternatives that might affect  
threatened, endangered, or proposed species would be subject to  
formal consultation or conference with the U.S. Fish and Wildlife  
Service or the National Marine Fisheries Service under Section 7  
of the Endangered Species Act. BLM and the Forest Service would  
consult on such actions evolving from local standards and  
guidelines tied to this environmental impact statement as  
discussed in Chapter 2. Similarly, conferences would be  
conducted for species proposed for federal listing.



1 Federal candidate and state threatened and endangered species may  
2 not be federally listed as threatened or endangered. BLM and the  
Forest Service, therefore, give priority to special cooperative  
habitat management to ensure the restoration of such species.  
5 The Forest Service also designates sensitive species to ensure  
6 that their populations do not decline to the point that they need  
7 to be listed as threatened or endangered. The BLM uses the term  
8 sensitive species for state-listed, federal candidate, and other  
9 nonfederal listed species that require special attention. Both  
10 BLM and Forest Service policies are to manage sensitive species  
11 so that they do not need to be federally listed as threatened or  
12 endangered. In this Draft EIS, "sensitive species" refers to  
13 special status species that are not federally listed.

14 Under all alternatives, species recovery plans would continue to  
15 be implemented, though at differing rates with respect to grazing  
16 management needed to meet recovery objectives.

17 Habitats for threatened and endangered (T&E) anadromous fish  
18 would be managed for protection and recovery regardless of  
19 Rangeland Reform or whether PACFISH, which is under development,  
20 is pursued. Such habitats are subject to the Endangered Species  
21 Act, including implementing recovery plans and Section 7  
22 consultation with the National Marine Fisheries Service on all  
23 existing and proposed actions. Anadromous T&E habitats now  
24 represent about 20 percent (3,500 miles) of all anadromous  
25 habitats on federal rangelands in the Pacific Northwest. This  
26 proportion would likely increase as new stocks, now at risk of  
extinction, are designated as threatened or endangered.

28 Many sensitive species occur locally, or their status designation  
29 is local or statewide. Sensitive species likely to be affected  
30 locally would require careful consideration in the site-specific  
31 environmental analyses for management changes as discussed in  
32 Chapter 2. Sensitive species would be treated according to their  
33 status during site-specific ecological evaluations or  
34 environmental analyses for management changes that implement  
35 actions described in the alternatives. Attempts toward  
36 ecosystem-based management, including incorporation of standards  
37 and guidelines under some alternatives, would promote BLM and  
38 Forest Service goals of ensuring that sensitive species are  
39 restored and would not need to be federally listed as threatened  
40 or endangered.

41 Habitats for threatened and endangered species would be managed  
42 for protection and recovery by implementing recovery plans and  
43 through Section 7 consultation with the Fish and Wildlife Service  
44 or the National Marine Fisheries Service. Standards and  
45 guidelines developed under consultation and recovery plans would  
46 override those within the range of alternatives described in this  
47 document. Therefore, alternatives would be similar for habitats  
48 of federally listed species, except where parts of policy or



1 regulations in some alternatives could indirectly expedite  
2 recovery. Most change would be attributed to the other special  
3 status species termed "sensitive" in this document.

#### 4 CULTURAL AND PALEONTOLOGICAL RESOURCES

5 Although continued grazing practices and rangeland improvement  
6 projects could affect cultural and paleontological resources,  
7 many early remnants of the livestock industry are now part of the  
8 historic landscape. As the livestock industry has developed in  
9 the past 100 years, prehistoric and historic properties have been  
10 destroyed, and traditional lifeway values of both indigenous and  
11 nonindigenous groups have been affected (Horne and McFarland  
12 1993; DOD, ACE 1990; Osborns and others 1987).

13 In riparian zones, around springs and watering tanks, along  
14 livestock trails, and in confined areas such as holding pens,  
15 livestock trampling can easily destroy shallow archaeological and  
16 paleontological deposits as well as the vegetation in Native  
17 American traditional plant gathering locales. The impact on  
18 riparian zones is particularly significant since cultural  
19 resource site densities tend to be higher in these areas. Not  
20 only do livestock accelerate bank erosion along streams where  
21 cultural deposits are often buried, but the depletion of ground  
22 cover through trampling and overgrazing hastens the erosion of  
23 cultural properties by wind and rainfall. Further, cattle  
24 rubbing against objects can destroy historic structures and rock  
25 art.

26 Hundreds of National Historic Preservation Act (NHPA) Section 106  
27 compliance documents in field offices throughout the West have  
28 reported that any cultural resource on or near a rangeland  
29 activity is vulnerable to vandalism; theft; impacts from vehicles  
30 and livestock; loss of integrity through the altering of the  
31 surrounding environment; and introduction of visual, audible, or  
32 atmospheric elements that are out of character with the property  
33 or alter its setting. In addition, increased access from  
34 rangeland undertakings may further help destroy cultural  
35 resources. Increased visits to areas can cause the attrition of  
36 historic values on an area as well as a site-specific level.

37 Cultural resources may be damaged by earthmoving equipment such  
38 as bulldozers, backhoes, drills, and hand tools, or when roads,  
39 trails, and other access routes are developed, maintained, or  
40 improved to facilitate rangeland operations. The severity of  
41 effects varies with the intensity of the proposed activities.  
42 To the extent that the proposed changes would inhibit rangeland  
43 development, fewer cultural resources would be discovered and  
44 inventoried as a result of the Section 106 (National Historic  
45 Preservation Act) compliance process. On the other hand, if  
46 development is inhibited, fewer cultural resources would be  
47 destroyed by these activities. In addition, to the extent that

1 rangeland improvements are removed and new improvements are  
developed for other resources, cultural resources would be  
harmd.

4 Historically ranching has directly conflicted with Native  
5 American traditional lifeway values. Many Native Americans also  
6 rely on ranching for their livelihood. In addition to effects  
7 from surface disturbance similar to cultural resources, Native  
8 American traditional values can be affected by activities that  
9 interfere with resource gathering and religious practice. The  
10 following are some examples:

- 11 ♦ Some religious practices, such as vision quests, require  
12 solitude and isolation.
- 13 ♦ Practices such as human burial require protection from  
14 disturbance and access by family and tribal members.
- 15 ♦ Access to traditional use plants may be limited during the  
16 relatively short periods when they may be obtained.
- 17 ♦ Traditionally used resources may be destroyed by ranching.
- 18 ♦ Sacred sites such as medicine wheels or caves may be damaged  
19 or desecrated by livestock.

22 The effect of the proposed changes would vary with the extent to  
which plants, minerals, and other resources and locations are  
23 either destroyed or made inaccessible. These effects can be  
24 minimized through ongoing consultation with affected Native  
25 American groups and persons, as outlined in BLM Manual 8161,  
concerning both regional and project-specific effects.

26 Changes in grazing management might also affect traditional  
27 cultural properties by redefining the landscape of western towns,  
28 rural areas, buildings and structures, and other resources  
29 developed to sustain and express a specific way of life. The  
30 potential loss of these elements of the landscape, which have  
31 been shaped and sustained by this traditional lifestyle, must be  
32 accounted for at the local level using the requirements for  
33 considering traditional cultural properties in the National  
34 Historic Preservation Act (specifically Sections 106 and 110).

35  
36 Surface disturbances in soft sedimentary rocks and unconsolidated  
37 soils might threaten paleontological resources just as such  
38 disturbances could affect cultural resources.

39 Ranching may also have the indirect effects involving  
40 unauthorized removing of paleontologic resources, destroying  
41 paleontologic resources by all types of off-highway vehicles, and  
42 other activities. Such destruction is accelerated by population  
43 increases as well as by developing or improving roads or trails

1 for ranching. Changes to the earth's surface can also indirectly  
2 harm paleontologic resources through erosion and weathering.

### 3 ECONOMIC CONDITIONS

#### 4 PERMIT VALUE

5 The Federal Government does not recognize private ownership of  
6 grazing permits, and the federal courts have affirmed the  
7 government's position that raising the grazing fee is not a  
8 "taking" of property protected by the Fifth Amendment to the  
9 United States Constitution. In light of these rulings, the  
10 following discussion describes how the value of federal grazing  
11 permits may be affected by changes in federal grazing fees and  
12 forage allowed for livestock grazing, despite permittees' lack of  
13 legal claim to such value.

14 In theory, permit value results in part from the Federal  
15 Government's charging less than market value for forage on  
16 federal land. Under this theory, the private market recognizes  
17 that an increase in grazing fees reduces permit value. As  
18 mentioned in Chapter 3, permit values in reality are likely  
19 affected by a variety of market forces.

20 According to the theory, retaining the current PRIA fee formula  
21 would generally maintain permit values, all else being equal. At  
22 the same time, however, uncertainty over the future fee may cause  
23 permit values to be discounted.

24 As a general rule, a ranching operation which possesses a grazing  
25 permit is worth more than a similarly-situated ranching operation  
26 that does not possess a grazing permit. The real estate market  
27 recognizes the difference in value between the two types of  
28 ranching operations in purchases and sales of such property. The  
29 difference in value reflects the benefits associated with the  
30 federal grazing permit. Since the increased value of a ranch  
31 with a grazing permit is tied directly to the permit, a long line  
32 of court cases has held that ranch owners with grazing permits  
33 can not recover from the United States for losses in ranch value  
34 due to modifications of their grazing permit. Recognition of  
35 permit value by the federal land management agencies would allow  
36 permittees to retain the capitalized value of a public resource,  
37 a resource that has never been conveyed by the public to the  
38 permittees. This would place the government in the awkward  
39 position of being required to compensate ranch owners for a  
40 privilege that was conferred by the government in the first  
41 place. A privilege is not a compensable right.

42 Reduced permit value may also affect the debt to equity position  
43 of certain affected permittees, at least in the short term. The  
44 significance of the impact depends upon when the permit was  
45 acquired and how much value the permit loses. For permittees who

1 have just acquired permits where the permit values were not  
2 discounted, the impact might be significant. For permittees who  
3 have held their permits for years, the impact might not be  
4 significant because they have benefitted from lower fees through  
5 the years and thus have already captured much of the permit value  
6 associated with lower grazing fees.

7 When federal forage is reduced or eliminated, the value of the  
8 permit could also decline. Whereas increasing grazing fees  
9 reduces permit value, total loss of public grazing essentially  
10 eliminates the value of the permit. A permittee that loses all  
11 or part of a permit loses the capital value that the permit  
12 contributed to the associated ranch for sale or lending purposes.

13 If the loss of federal grazing results in an inability to use  
14 some of the associated base property in the ranch, then the  
15 impact on ranch value could be greater than just the loss of the  
16 capital value of the permit.

17 The value lost from reductions in federal forage would vary  
18 considerably depending on such factors as how critical federal  
19 grazing is to the economic viability of the ranch, alternative  
20 sources of forage, season of use, whether all or a small  
21 percentage of the grazing is eliminated, and location of the  
22 federal grazing lands.

23 If the loss of federal grazing results in a ranch's losing  
24 economic viability, then the loss could be significant. For  
25 example, if a ranch uses private hay land and relies entirely on  
26 federal lands for grazing, loss of the grazing could make the  
27 ranch inviable. The private hay land would still have value, but  
28 probably not as much value as it would have if it were part of a  
29 viable economic unit. On the other hand, a ranch property such  
30 as this could be leased or sold to another ranch operation,  
31 thereby maintaining its productive capacity.

#### 32 **PAYMENTS-IN-LIEU-OF-TAXES (PILT)**

33 Appendix H, Payments-in-Lieu-of-Taxes (PILT), describes in detail  
34 the relationship of PILT to grazing fee receipts.

35 Counties that receive PILT payments under PILT Formula A may  
36 experience a decrease in their PILT payments with an increase of  
37 grazing fees returned to them. But the total receipts paid to  
38 these counties (the sum of grazing fee receipts and PILT  
39 payments) would remain unchanged because for each dollar increase  
40 (or decrease) in grazing fee receipts, PILT payments would  
41 decrease (or increase) by the same amount.

42 In many western states, federal grazing fee receipts returned to  
43 the state are passed through directly to counties for school  
44 districts or other special or single purpose districts. In this



1 circumstance, grazing fee receipts are not deducted from PILT  
2 payments under Formula A. For these counties, PILT payments  
3 would be unaffected, and the only impact would be the amount by  
4 which grazing fee receipts increased (or decreased).

5 Counties that receive PILT payments under PILT Formula B would  
6 experience no change in PILT payments regardless of changes in  
7 grazing fee receipts.

#### 8 **RED-MEAT PRICES**

9 Red-meat prices would not be affected under the proposed  
10 alternatives. Red-meat prices are discussed in more detail under  
11 the No Grazing alternative.

#### 12 **FEE PHASE-IN AND INCENTIVES**

13 The BLM and Forest Service propose to include the provisions for  
14 a 3-year phase-in of the fee and, in a separate rulemaking, the  
15 provision for development of a 30 percent fee incentive. Under  
16 the proposal, if no incentive is developed and approved, only the  
17 second year phase of the fee increase would occur. Impacts  
18 presented here are based on the assumption that any fee would be  
19 implemented fully with no incentive. If however, an incentive is  
20 in place, the cumulative impacts of the fee increases with  
21 incentives on permittees would be reduced by the amount of the  
22 incentive itself times the number of permittees who qualify. If  
23 no incentive is in place then the impacts would be less than  
24 presented under the proposed action. See the impacts for the  
25 Modified PRIA formula (\$3.69 fee) for an approximation of the  
26 impacts if no incentive is developed and only the second year of  
27 the phase-in is implemented.

#### 28 **RECREATION-RELATED ECONOMIC IMPACTS**

29 Recreation and tourism are two areas of economic activity likely  
30 to be affected by Rangeland Reform '94. Impacts on employment  
31 and income from recreation and tourism would be seen in the trade  
32 and service industries (where recreation occurs), within  
33 manufacturing industries (where recreational products and  
34 supplies are purchased), and in transportation industries (to  
35 recreational areas).

36 The analysis in this EIS does not estimate potential changes in  
37 recreation visitor use days resulting from rangeland management  
38 alternatives. But to give a perspective on potential economic  
39 implications of changes in recreation use, the following table  
40 gives changes in employment and income from a change of 1 million  
41 recreational visitor days for big game hunting, fishing, and  
42 nonconsumptive wildlife use (viewing, photography).



1                   EMPLOYMENT AND INCOME EFFECTS OF A CHANGE  
2                   OF 1 MILLION RECREATIONAL VISITOR DAYS

	Employment	Income (1993 \$)
3   Big Game Hunting	930	\$34,344,000
4   Fishing	730	\$27,955,000
5   Nonconsumptive Wildlife Use	700	\$25,179,000

6  
7   Source: Forest Service 1993f (IMPLAN)

8   **NONCOMMODITY ENVIRONMENTAL VALUES**

9   The economic impacts addressed in this EIS are primarily  
10 associated with commodity production resulting from changes in  
11 resource conditions. The environmental analysis also identified  
12 impacts for a wide variety of environmental resources that are  
13 not associated with commodity production and, thus, do not  
14 possess easily identifiable economic values. Nonetheless, these  
15 resources may have significant nonmarket values and should be  
16 considered when establishing public policy for rangeland  
17 management.

18 Resources and ecosystem processes with nonmarket values include  
19 watersheds, air and water quality, visual amenities, fish and  
20 wildlife habitat, vegetation conditions, ecosystem health,  
21 biodiversity, and resource sustainability. Improvements in these  
22 resource conditions may provide significant nonmarket societal  
23 benefits that may improve social welfare. These benefits would  
24 offset the economic costs associated with reduced income and  
25 employment from loss of commodity production (e.g. livestock  
26 production). Because these benefits do not have identifiable  
27 economic values, however, the extent to which they would offset  
28 losses in employment and income is unknown.

29   **SOCIAL CONDITIONS**

30 The social effects of implementing any of the alternatives under  
31 consideration would be manifested in a variety of ways. These  
32 effects would differ from individual to individual and community  
33 to community. Therefore, the effects described in this analysis  
34 are generalized to describe what are believed to be the most  
35 likely consequences for the affected individuals and communities.

36 Effects to people and to the functioning of their communities are  
37 complex and closely interrelated. Some effects, such as income  
38 and employment changes, are quantifiable. Effects to lifestyles,  
39 personal values, and attitudes are harder to quantify and  
40 explain. Economic and social effects need to be integrated to  
41 determine the social consequences of the alternatives.

The cumulative effects of each alternative are integrated into each analysis section or carried forward into another section. For example, the cumulative effects of impacts to individual permittees will be discussed under Counties and Communities.

Another aspect of social cumulative effects is the integration of fee changes with changes in regulations and revised management standards and guidelines. A third aspect of cumulative analysis is the integration of changes that are already ongoing in the affected environment. This complicated social reality is recognized throughout the analysis.

The main analysis headings are Permittees, Counties and Communities, and National Impacts. Introductions to the Permittees and Counties and Communities discussions are presented below. These introductions examine in more detail the types of impacts that are discussed under each alternative.

#### **PERMITTEES**

This section presents an overview of the types of impacts a reduction in ranching activities could have on ranchers. Discussions under the different alternatives depend in part on references to this section. This section should be kept in mind when exploring the alternatives.

About 27,000 ranchers hold federal permits in the 17 western states. Permittees, ranch family members, ranch employees, and other people and businesses associated with the livestock industry would be most affected under each alternative because changing fees and regulations and implementing standards and guidelines would directly affect ranch operations. But, due to the variety of economic and social situations facing permittees, not all permittees, ranch employees, or associated businesses would be affected in the same way. County and regional differences in scenic quality, recreation and tourism, and economic diversity mean that some permittees could adapt and prosper under the changing circumstances and some could not.

Many permittees feel that their lifestyle and economic stability are threatened by the Rangeland Reform '94 proposals. Signs of social stress are evident in the ranching community's comments on this analysis. These comments detail concern about permittees' future ability to continue local ranching customs and culture, and the "western way of life." They feel that Range Reform, in combination with other recent changes in natural resource management, such as timber management and endangered species regulations, is designed to remove ranchers from public lands and that these proposals will negatively affect the relationship between federal land management agencies and westerners.

1 Some permittees also believe that an increase in grazing fees  
2 will cause economic hardship and jeopardize the economic vitality  
3 of their ranches due to their already slim profit margins. They  
4 believe that loans may be harder to obtain, and permittees may be  
5 forced to lay off employees, abandon leases, or subdivide and  
6 sell land to developers. They feel the result would be harm to  
7 the regional economies from ranch bankruptcy or sale, and  
8 decreases in the value of recreation and tourism drawn by the  
9 local ranch culture and open spaces.

10 Under some of the alternatives proposed in this EIS, some  
11 permittees may decide to scale back or sell their ranches. These  
12 permittees or their family members may have to seek new  
13 employment. Finding satisfactory new employment is difficult for  
14 some groups. The stress associated with the need to change  
15 professions and possibly lifestyles has repeatedly surfaced as an  
16 important social problem. All people, through the socialization  
17 process, acquire a mental picture of who they are. Groups such  
18 as loggers, ranchers, fishermen, and farmers tend to strongly  
19 identify themselves as belonging and being in a certain life  
20 role. They have an extremely hard time imagining themselves  
21 being anything else (Lee and others 1991). This phenomenon is  
22 especially true if the person has been engaged in a business and  
23 lifestyle since childhood and has 20, 30, or more years of living  
24 in that social context, as have many western ranchers.

#### COUNTIES AND COMMUNITIES

26 This section gives an overview of the types of impacts the  
27 counties and communities (described in Chapter 3) might  
28 experience due to a decline in local ranching activity. The  
29 discussions under the different alternatives depend in part on  
30 references to this section. Under the discussions of different  
31 alternatives, county examples will be given where suitable. This  
32 section should be kept in mind when exploring the alternatives.

33 The effects to communities would vary a great deal depending on  
34 the community capacity to adapt to internal and external forces  
35 and the consequences of the management decisions. Community  
36 capacity depends upon the community members' ability to pursue  
37 collective goals; the skills, experience, and educational levels  
38 of people in the community; the size and diversity of local  
39 businesses; and the community's access to financial capital,  
40 transportation, markets, and raw materials (Forest Ecosystem  
41 Management Assessment Team 1993).

42 Generally, small isolated communities are more vulnerable to  
43 external forces due to their less active leadership, weaker links  
44 to centers of political and economic influence, lower levels of  
45 economic diversity, and lack of control over resources and  
46 capital. These small communities are more likely to experience

unemployment, increased poverty, and social disruption in the face of shifts in management policy (Forest Service and BLM 1993a).

Reductions in business and permittee economic activity could also lead to reduced revenue for local infrastructure and services, such as schools, medical care, and law enforcement. The population of many of these communities is aging more rapidly than the population in general and may have high demands for services such as transportation and medical care. In addition, the school is often the focal point of the community. As Jobes (1986) points out, "The local school draws residents together for shared activities and symbolic events." If financial problems in the community eliminate the ability to support a school or reduce the effectiveness and frequency of school activities, the school's ability to foster community cohesiveness would decline.

Since many of these trends are already occurring, some communities will change even if livestock grazing management does not change. In some areas changing livestock grazing management may accelerate the ongoing transition from an agriculturally based economy. Under alternatives where recreation quality increases, however, Rangeland Reform '94 might help some communities take better advantage of the recreation and tourism opportunities in their area and may enable some permittees to find part-time work that would allow them to stay on their land.

## **ASSUMPTIONS AND ANALYSIS GUIDELINES COMMON TO ALL ALTERNATIVES**

### **VEGETATION**

#### **UPLAND**

Areas that have been taken over by invading annuals, such as cheatgrass, would not improve significantly under any alternative without vegetation manipulation. The same situation would be true for areas of high-density juniper or sagebrush with little perennial herbaceous understory.

Ecological status and vegetation trend in the uplands would not be significantly affected by any alternative in the short term because uplands would need more than 5 years to significantly change.

The functioning uplands (BLM-administered lands) and meeting or moving toward management objectives (Forest Service-administered land) would most notably improve in the short term (5 years) only under the Environmental Enhancement and No Grazing alternatives.



1 The methodology for determining condition of uplands is discussed  
in Appendix I, Biological Methodology.

3 Changes or improvements of uplands under all alternatives would  
4 be most apparent in areas with 12 inches or more annual  
5 precipitation.

#### 6 **RIPARIAN/WETLAND/AQUATIC**

7 For each alternative this impact analysis used a range of  
8 improvement or degradation percentages for the expected rates of  
9 change in riparian resource condition. A range was used because  
10 the analysis regions vary in the amount of riparian resources  
11 being grazed, the extent of human and agricultural development,  
12 the relative overall riparian and upland condition, soil  
13 stability and productivity, and annual precipitation. The  
14 methodology for determining condition of riparian condition is  
15 discussed in Appendix I, Biological Methodology.

#### 16 **WILDLIFE**

17 The environmental impact analysis focuses on policy and  
18 regulation changes that would affect wildlife populations  
19 associated with the vegetation communities. Given the close  
20 association of riparian resources and aquatic habitats, this  
21 analysis assumes that improved riparian area condition would  
22 substantially benefit aquatic resources.

23 How riparian vegetation influences upland wildlife partly depends  
24 on to what extent species depend on riparian areas and the  
25 juxtaposition of the riparian and upland habitats. Increased  
26 structural diversity of vegetation generally increases the number  
27 of habitat components within any ecosystem that benefit wildlife  
28 and biodiversity.

29 Increases in residual plant material, plant mass, plant litter,  
30 residual seed material, and opportunity for root growth and new  
31 plant establishment in riparian areas benefit the functioning of  
32 riparian areas and riparian wildlife (Anderson 1993).

33 The current trend for upland areas is slightly upward, and for  
34 riparian areas is slightly downward. The downward riparian trend  
35 results from the difficulty of preventing livestock from  
36 congregating in riparian areas and the current amount of  
37 year-long and continuous season-long grazing in riparian  
38 habitats.

39 Continuing harmful habitat changes such as exotic species  
40 invasions, particularly on lower and mid-elevation rangelands,  
41 would offset positive changes within some regions. The onslaught  
42 of cheatgrass, medusahead wildrye, knapweed, and leafy spurge  
43 would continue to lessen the amount and degrade the quality of



upland wildlife habitat. Any improvement in plant vigor and composition within a plant community might be partially to significantly offset by habitat losses resulting from such invasions. The megatrend of some invasions for decades would continue to threaten the maintenance of habitat integrity and biological diversity.

Other wildlife assumptions are as follows:

- ♦ The number of plant and animals recognized as special status species would increase.
- ♦ Big game populations would continue to increase.
- ♦ Public demand for nonconsumptive use of wildlife, including viewing, would continue to rise and would become a major factor in future management.
- ♦ The desired plant community concept would be implemented, and the desired plant community would not necessarily be the potential natural community.

#### WILD HORSES AND BURROS

The following assumptions were applied to the analysis of the impacts to wild horses and burros.

- ♦ standards and guidelines for managing domestic livestock grazing do not apply directly to managing wild horses and burros.
- ♦ Appropriate management levels (AML) would be established or changed mainly as a result of site-specific monitoring as a site-specific issue. For the analysis in this EIS, AML would remain constant throughout all alternatives.

1 ♦ The issue of wild horse and  
burro overgrazing is not  
within the scope of this EIS.

4 ♦ Wild horses and burro  
5 populations would be at  
6 appropriate management levels  
7 within the short term under  
8 all alternatives.

9 RECREATION

10 The following assumptions were applied to the analysis of impacts  
11 to recreation.

12 ♦ Current livestock grazing  
13 generally degrades the  
14 quality of recreation user  
15 experiences.

16 ♦ The diversity of recreation  
17 users and uses is increasing.  
18 ♦ Recreation users have  
19 increasing needs for access  
20 to federal lands.

21 ♦ Intensified grazing  
management needed to control  
22 livestock and protect other  
23 resources requires an  
24 increasing accumulation of  
25 structures.  
26

27 ♦ Recreation users are becoming  
28 increasingly sensitized to  
29 intrusions, including  
30 livestock and structural  
31 range improvements.

32 ♦ Sensitive recreation areas  
33 include developed recreation  
34 sites, national recreation  
35 areas, national conservation  
36 areas, components of the  
37 national wild and scenic  
38 rivers system, areas of  
39 critical environmental  
40 concern important to  
41 recreation users; and units  
42 of the National Park System  
43 that have livestock grazing  
44 administered by BLM.

## ECONOMICS

The analysis of economic impacts for all management alternatives across the range of grazing fee formulas is based on the following assumptions and methodologies.

1. The analysis is based on the 3-year average number of BLM AUMs **authorized** (paid for) in fiscal years 1990, 1991, and 1992, and Forest Service head months **actual use** in calendar years 1989, 1990, and 1991. (See Appendix J, Three-Year Average AUMs Authorized [BLM] and Actual Use [Forest Service]). Forest Service head months are equivalent to BLM AUMs.

2. Under the BLM-Forest Service Proposed Action, the Forage Value Index was changed recently from 1.08 as described in the ANPR to 1.00. This change was described in Chapter 1 and Chapter 2. (The Forage Value Index is one of the variables in the fee formula chosen as the Proposed Action). Changing the index caused the resulting fee to decline 7.5 percent from \$4.28 to \$3.96. With this change, the new proposed fee falls almost exactly at the midpoint between \$4.28 (fee alternative 3) and \$3.72 (fee alternative 6), which are both analyzed in this draft EIS. The impacts for the Proposed Action are presented as a range between those caused by a \$4.28 fee and those caused by a \$3.72 fee.

3. Under each fee formula, the calculated fee for 1993 was used to estimate impacts, with the analysis assuming that the entire phase-in period has occurred. Thus, the impacts presented here should be viewed as those occurring **after** complete phase-in. Fees under each formula would vary from year to year. Appendix K, Total Increase in Grazing Fees Paid by Permit Size by Fee Alternative, shows for each 1993 fee level the total dollar **increase** in grazing fees that permittees would pay. The increases are shown for permits in the following AUM groups: permits with 1-500 AUMs, 501-1000, 1001-2000, and 2001+. Appendix L, A Comparison of Grazing Fee Formulas from 1983 to 2003, shows historic and projected fees under each different fee formula.

4. The demand for forage on public lands, national forest lands, and national grasslands is assumed to remain constant across all **fee** levels, at the 3-year average levels. The analysis further assumes that, as long as the fee is equal to or less than the values for federal forage determined by forage value appraisals conducted in the mid-1980s (see Appendix B), public land forage would continue to be in demand in the long run. But some current operations may not continue to operate at higher fee levels, and the amount of forage demanded would decrease at higher fee levels for some operations. The analysis thus assumes that the forage associated with these operations would be acquired by other operations.

A wide range of viewpoints exist regarding the economic implications of higher grazing fees. Appendix M, Summary of Findings of Non-Government Grazing Fee Studies, presents a summary analysis of a variety of studies that have been conducted on this subject. These studies support a broad range of conclusions on the economic effects of different grazing fee levels and point to the continuing debate surrounding this issue.

5. For analysis purposes, fees under competitive bidding (fee alternative 7) are assumed to be the same as those under the regional-fee alternative (fee alternative 4). Fees set by competitive bid in any given region would likely fall across a broad range of values. Thus, the regional fees under fee alternative 4 should be viewed as an average competitive bid fee for representing a wider range of potential fees.

6. Grazing fee receipts will be distributed as currently authorized by law.

7. Micro-IMPLAN was used to estimate changes in employment and total income. Micro-IMPLAN is a Forest Service economic impact modelling system used extensively to estimate the economic effects of programs, policies, and actions. Micro-IMPLAN uses a consistent set of regional accounts and software for building predictive input-output models, and a demand-driven analysis system for analyzing policy questions such as changes in grazing fees and forage levels. See Appendix N for more detail on the Micro-IMPLAN methodology used for this analysis.

8. The methodology used to estimate reductions in net cash returns for ranch operations was developed using an analysis developed by the USDA, Economic Research Service (ERS). This analysis appears in Appendix G, Economic Aspects of Supply and Demand for Livestock Forage on Public Lands. The methodology developed by BLM to estimate impacts to ranch income using the ERS analysis appears in Appendix O, Changes in Ranch Returns from Reduced AUMs and Higher Grazing Fees.

#### **ASSUMPTIONS AND ANALYSIS GUIDELINES BY ALTERNATIVE**

##### **CURRENT MANAGEMENT**

- ♦ Funding would remain constant.
- ♦ Management priorities for the rangeland program would remain the same.
- ♦ Long-term ranch and rural economic trends would continue and not change.

##### **PROPOSED ACTION**

1 ♦ Funding would increase  
2 because of the increased  
3 grazing fee.  
4 ♦ Nonfunctioning areas would  
5 not be grazed.

6 LIVESTOCK PRODUCTION

7 ♦ Funding would increase  
8 because of the increased  
9 grazing fee.  
10 ♦ This alternative is directed  
11 toward local control.  
12 ♦ The main purpose of this  
13 alternative is to maintain  
14 local custom, culture, and  
15 lifestyle, not necessarily  
16 reduce or increase livestock  
17 grazing.  
18 ♦ Grazing advisory board  
19 recommendations must conform  
20 to applicable law,  
21 regulations, and land use  
22 plans.

23 ENVIRONMENTAL ENHANCEMENT

24 ♦ Funds would be constant.

25 ♦ Grazing would continue in  
26 areas that are functioning  
27 properly if not in conflict  
28 with other land use plan  
29 objectives.

30 ♦ No grazing would be allowed  
31 in nonfunctioning areas and  
32 areas that are functioning  
33 but susceptible to  
34 degradation until such areas  
35 reach properly functioning  
36 condition.

37 ♦ No grazing would be allowed  
38 where the functioning  
39 condition has not been  
40 determined.

41 ♦ No grazing would be allowed  
42 in designated wilderness (BLM  
43 recommended suitable and  
44 forest plan recommend



1 wilderness, developed  
2 recreation sites, and where  
3 grazing would conflict with  
4 areas of designated critical  
5 habitat (desert tortoise,  
6 Pacific salmon) and areas of  
7 national and historic  
8 cultural significance.

9 ♦ More forage would not be  
10 allocated to livestock but  
11 instead could be used to  
12 satisfy state wildlife agency  
13 population objectives for big  
14 game.

15 ♦ Grazing administration costs  
16 and workloads would increase.

17 ♦ Funding for fencing eligible  
18 cultural sites and other  
19 sensitive areas excluded from  
20 grazing would continue at  
21 current levels.

22 NO GRAZING

23 ♦

24 A rangeland funding need of  
25 30 percent of 1990 funding  
26 levels would be needed to  
administer No Grazing.

27 ♦ Trailing permits would  
28 continue to be issued.

29 ♦ There would be a 3-year phase  
30 in for full implementation.

31 ♦ Livestock control to prevent  
32 unauthorized use of BLM- and  
33 Forest Service-administered  
34 land would be the  
35 responsibility of the  
36 adjacent landowners.

37 ♦ Range improvement projects  
38 would be removed if they are  
39 detrimental to other  
40 resources or if they conflict  
41 with other uses.

1 ♦ The administering federal  
2 agency would be responsible  
3 for removing fencing, spring  
4 developments, and storage  
5 tanks not needed for  
6 livestock.

7 ♦ Operators who lose their  
8 grazing privileges will be  
9 permitted to salvage their  
10 range improvement investment  
11 according to cooperative  
12 agreements.

13 ♦ Where determined to be needed  
14 to benefit wildlife or other  
15 resources, vegetation  
16 manipulation methods will be  
17 used to stop succession.  
18 These methods may include  
19 prescribed fire, mechanical  
20 manipulation, and livestock  
21 grazing.

1                   **ALTERNATIVE 1: CURRENT MANAGEMENT (NO ACTION)**

2                   **GRAZING ADMINISTRATION**

3                   **LIVESTOCK USE LEVELS**

4                   National statistical reports show that forage consumed by  
5                   livestock on federal rangelands has declined by 6 percent (BLM)  
6                   and 8 percent (Forest Service) per decade (BLM 1992a; Forest  
7                   Service 1993a). These changes can be attributed to many factors,  
8                   including agency decisions based on carrying capacity and  
9                   resource protection, and operator decisions based on personal or  
10                  business considerations. These trends are expected to continue  
11                  during the foreseeable future with or without programmatic  
12                  changes in federal rangeland management policies and practices.

13                 For example, transitions from rural to urban communities are  
14                 expected to reduce the future number of livestock operations.  
15                 Implementing environmental laws such as the Endangered Species  
16                 Act would continue to greatly affect how livestock are managed on  
17                 federal lands, as in managing to protect the endangered Snake  
18                 River sockeye salmon in the Northwest and the desert tortoise in  
19                 the Desert Southwest. The net result is that Current Management  
20                 is expected to result in a 5 percent decline in animal unit  
21                 months (AUMs) of forage authorized for livestock grazing by both  
22                 agencies within 5 years and an 18 percent decline in AUMs  
23                 authorized by BLM and a 19 percent decline in AUMs authorized by  
24                 the Forest Service in 20 years. (See Figure 4-1 for estimates of  
25                 short- and long-term livestock reductions on BLM- and Forest  
26                 Service-administered lands.)

27                 There will, however, be regional departures from this national  
28                 trend projection. Most notably, in the long term the amount of  
29                 forage allowed to be grazed by livestock on Forest Service-  
30                 administered lands in the Columbia Basin analysis area is  
31                 expected to decline by only 10 percent. This small amount would  
32                 result from a large part of the area's Forest Service-  
33                 administered land already meeting management objectives and the  
34                 prediction that all but 2 percent would meet forest plan  
35                 objectives in 20 years.

36                 **PROGRAM EFFICIENCY AND EFFECTIVENESS**

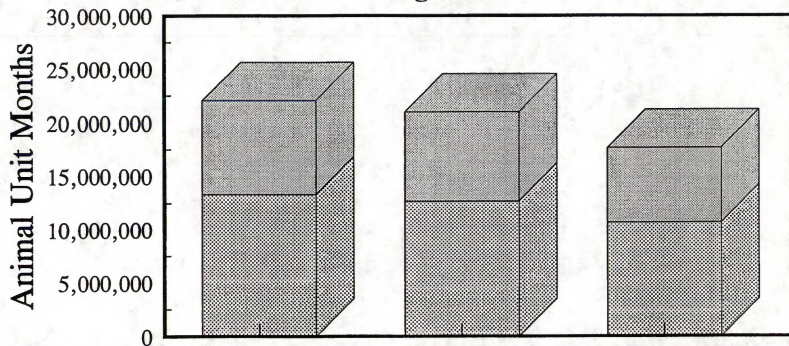
37                 Under Current Management, BLM and Forest Service regulations  
38                 would continue to be inconsistent in many areas: leasing,  
39                 prohibited acts, grazing advisory boards, suspended nonuse,  
40                 unauthorized use, decisions and appeals process, grant policy,  
41                 Range Betterment Fund use, water rights (national policy),  
42                 foreign corporations, and service charges. Such inconsistencies  
43                 would continue to impede these agencies in implementing ecosystem  
44                 management. These inconsistencies would continue to confuse  
45                 permittees and the public.

Figure 4-1

# Available Livestock Forage

## In Animal Unit Months

### Current Management



	1993	Short Term	Long Term
BLM	13,303,068	12,673,580	10,698,035
Forest Service	8,765,829	8,323,936	6,950,267
	22,068,897	20,997,516	17,648,302

AUMs are estimated for both the Forest Service and BLM.

Under Current Management, BLM would retain its current method of issuing penalties for unauthorized use, which is highly effective because the accelerating level of penalties discourages repeat violations. The relatively low fines charged by the Forest Service have caused problems with repeat trespassers, and these problems would continue.

Under current grazing regulations, BLM would continue to handle incidental use following the same process and levying the same penalties as for more serious cases. In practice, BLM drops many of the cases of incidental use to avoid spending scarce staff time on insignificant cases. The General Accounting Office reported that "BLM range staff do not consider it an efficient use of resources to incur the expenses associated with detecting, investigating, and resolving most minor, non-willful violations" (GAO 1990). As a result, BLM's strategy of resolving incidental trespass would continue to be inconsistent with its federal grazing regulations.

BLM and the Forest Service would continue to authorize significant amounts of active AUMS annually for nonuse. Annual applications for nonuse would continue to result in administrative inefficiencies and a large workload.

Tracking and maintaining records of suspended nonuse would continue to create administrative inefficiency.

Implementing appealed BLM grazing decisions would continue to be delayed until appeals are resolved by the Department of the Interior's Office of Hearings and Appeals or the Interior Board of Land Appeals. Persons or groups could appeal a decision merely to delay its implementation, knowing that the decision would be stayed until the appeal is resolved. Appeals would continue to create a large amount of administrative work. This added workload would continue to delay BLM's completing other work in support of implementing land use plans.

Issuing permits for up to 10 years would continue to generate administrative efficiencies, both in employee time and money spent. Both agencies would continue to have authority to issue permits for shorter periods where needed to meet management objectives.

BLM grazing advisory boards would continue to strongly influence decisions on spending and setting priorities for Range Betterment Funds. Some grazing advisory boards would continue to encourage BLM to spend money on projects serving narrow interests, or to limit the amount of money to be spent on multiple use projects such as wildlife water developments and habitat rehabilitation. But some grazing advisory boards would continue to be a positive force in implementing BLM policy and achieving resource



management objectives through review of livestock operators and grazing associations.

BLM would continue to apply for water rights under state law in some states and not in others. Likewise, BLM would continue to protest private water rights filings by grazing permittees for livestock grazing on public land in some states and not in others. Wildlife and other programs would continue to benefit from this policy. We anticipate that, without clarification, conflicts would continue to emerge between private water users, seeking exclusive control of a water source on public lands for livestock grazing purposes, and other multiple uses. BLM staff time would continue to be devoted to resolving such conflicts.

Both agencies are developing policies to promote ecosystem management. As these policies are implemented, the effectiveness of both agencies in achieving and promoting ecosystem health would increase. But until such policies are implemented, grazing management practices would continue to differ for different administrative units within the same ecosystem.

#### **AVAILABILITY AND USE OF RANGE BETTERMENT FUNDS**

Continuing the current policy of distributing all Range Betterment Funds to areas of origin would continue to prevent BLM from allocating enough money to meet the most critical resource needs, which are not spread equally across resource areas. This policy would retard progress in improving vegetation and other resource conditions, or in resolving other high-priority resource problems. On the other hand, the Forest Service policy of distributing half of Range Betterment Funds to the forest of origin and half to the forest region would continue to allow that agency to channel more money to priorities on a regional basis.

Current limits on Range Betterment Funds would not allow spending funds for resource monitoring and inventories, National Environmental Policy Act analysis, project planning, and initial survey and design. Requiring such costs to be paid with program administration funds reduces the capabilities of those other programs. Restricting Range Betterment Funds to on-the-ground projects would provide a consistent funding level for range improvement projects.

In the long term, a decline in livestock use on federal land and an accompanying decline in grazing receipts would reduce the amount of Range Betterment Funds going to BLM and the Forest Service by about 20 percent (from a 3-year average of \$15.4 million per year to \$12.3 million per year). Coupled with rising costs for range improvements, this decline would allow fewer range improvements to be built in the future. Furthermore, funds would still be needed to rebuild existing projects.

Alternative sources of funding, including increased permittee contributions, agency appropriations, and contributions from other sources, would become more important just for maintaining current management. Without such funding, some existing fences and water development for livestock grazing on public lands would eventually fall into disrepair, and livestock use would become increasingly difficult to manage. Fewer allotment management plans would be implemented each year, and progress would be slowed in meeting a wide range of resource objectives by changing grazing management. Riparian habitat and other resource conditions would deteriorate at an accelerating rate, and livestock grazing might eventually need to be reduced even more than now projected.

## **VEGETATION**

### **UPLAND**

In the long term under Current Management, 59,949,000 acres (82 percent) of Forest Service uplands would either be meeting objectives or moving towards objectives (a 2 percent increase from 1993), and another 13,243,000 acres (18 percent) would not be meeting objectives (an 8 percent decrease from 1993). (See Figure 4-2 for estimated changes in uplands.) About 117 million acres (74 percent) of BLM upland acres would be in proper functioning condition (an increase of 30 percent). Another 22 million acres (14 percent) would be functioning but susceptible to degradation (a decrease of 55 percent). Nonfunctioning areas would amount to about 20 million acres (12 percent) of BLM uplands (a decrease of less than 5 percent). (See Figure 4-3 for estimated changes in upland functioning condition.)

Under Current Management, areas having 12 inches or more of precipitation a year would generally change in ecological status from lower to higher seral stages. And in the long term the vegetation in some areas would change from potential natural communities to late seral stages because of overgrazing, fire, or drought and from late seral to mid seral stages. Most improvement would occur on acres in the early seral stages moving into the mid and late seral stages. This change would differ by administrative area since a vegetation community's management would depend on achieving objectives that differ according to an area's resource needs.

### **Sagebrush**

General condition and trend of sagebrush communities would continue to slowly improve. Within the short term, properly functioning acres would not measurably improve in most sagebrush communities. In the long term properly functioning acres would increase. Bitterbrush and other palatable brush would not change significantly, and seedlings would become established only where

the agencies' management included seedling protection from livestock grazing.

### Desert Shrub

Desert shrub communities are expected to remain static or undergo a slow-steady improvement. Community dynamics and drought cause these communities to have less variety and production than other plant communities such as the sagebrush. Regardless of the vegetation association, plants occupy about 7 to 8 percent of the surface, with interspace between plants occupied by rocks and cryptobiotic crusts (sometimes called cryptogamic crusts). The forb, grass, shrub, and cryptobiotic components are expected to increase in production and density. Cryptobiotic crusts are important in influencing the nutrient levels of soils and the status and germination of plants in the desert. These crusts are slow to recover after severe disturbance, requiring 40 years or more to recolonize even small areas.

Ecological condition and trend would change slowly due to low precipitation (8 inches or less per year) and high salinity. The time required to implement management plans also helps explain the slow ecological and trend improvement. Revegetation is a long-term process that cannot be induced in these low-precipitation and high-salinity areas.

### Southwest Shrubsteppe

The shrubsteppe ranges of southern New Mexico and southeast Arizona have been improving in condition since the drought of the 1950s, which reduced grass cover by as much as 75 to 90 percent. Improved condition has consisted mainly of increased grass cover, a result of favorable rainfall and sound management. The general trend would be to increase grass cover. The response would vary, depending on site characteristics and weather. Sites with harsh growing conditions would not improve much in 20 to 30 years. Many shrub-dominated sites would continue to be dominated by shrub unless the shrubs were chemically or mechanically controlled (Holechek and others 1989). Although current management appears to have favored the grass component of the community, in some cases the shrub component may increase over the long term, particular where livestock grazing is excessive

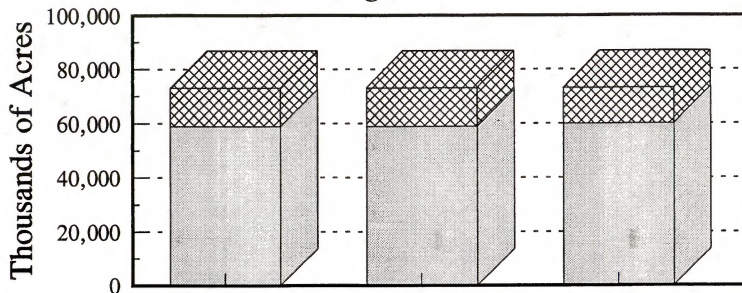
### Chaparral-Mountain Shrub



Under Current Management, scattered stands of shrubs would experience an upward trend, but dense stands would experience no apparent trend without fire or other treatment.

Figure 4-2

# Change in Status - Forest Service Uplands

## Current Management



	1993	Short Term	Long Term
Mtg/Moving To Objectives 	58,868	58,868	59,949
Not Meeting Objectives 	14,324	14,324	13,243
Total Acres	73,192	73,192	73,192

1 Insert Figure 4-3



1     **Pinyon-Juniper**

2     Scattered stands of pinyon juniper would experience an upward  
3     trend. But for dense stands there would be no apparent trend  
4     without fire or other treatment.

5     **Mountain and Plateau Grasslands**

6     Under Current Management, mountain and plateau grasslands would  
7     experience slow long-term increases in palatable grass and forb  
8     density and vigor, vegetation litter, and the accumulation of  
9     fine organic material.

10    **Plains Grasslands**

11    Current management would be maintained or slightly improve  
12    ecological status in the plains grasslands. Succession would  
13    gradually trend upward as climate allows. Wheatgrasses and  
14    needlegrasses would increase in composition relative to blue  
15    grama, Sandberg bluegrass, prairie junegrass, and sedges. Where  
16    clubmoss or blue grama prevail, little would be likely to change  
17    without the site being disturbed.

18    Nonriparian drainageways would usually receive heavy grazing  
19    under season-long use. While use patterns would continue to be  
20    heavier in these areas, rest from grazing and reduced time of  
21    grazing would benefit these areas more than the adjacent uplands  
22    that have traditionally been less heavily grazed.

23    **Annual Grasslands**

24    Annual grasslands would experience slow long-term increases in  
25    palatable grass, forb density and vigor, vegetation litter, and  
26    accumulation of fine organic matter.

27    **Alpine Grasslands**

28    Alpine ecosystems would not change significantly under Current  
29    Management.

30    **Coniferous and Deciduous Forests**

31  
32    Livestock grazing on seedlings would result in fewer deciduous  
33    seedlings surviving to sapling age, the conversion of  
34    coniferous/deciduous forests to coniferous forests or other  
35    vegetation communities, and accelerated loss of some deciduous  
36    stands. The rate of conversion would depend on the combined  
37    influence of timber management, grazing, and fire.

38    **RIPARIAN/WETLAND/AQUATIC**

Despite improvements in riparian habitat condition in many small areas, most of the 3.2 million acres of BLM- and Forest Service-managed riparian areas across the West would continue to be affected by livestock grazing under Current Management. Overall trends would continue, resulting in a slow, steady, long-term decline in condition.

In the long term, under Current Management 1,639,474 acres (75 percent) of Forest Service riparian areas would either be meeting objectives or moving towards objectives (a decrease of 4 percent from 1993); another 551,784 acres (25 percent) would not be meeting objectives (an increase of 14 percent from 1993). (See Figure 4-5.) Under Current Management, 342,500 acres (33 percent) of BLM riparian areas would be properly functioning (a decrease of 3 percent from 1993); 466,800 acres (45 percent) would be functioning but susceptible to degradation (a decrease of less than 1 percent from 1993); and 219,100 acres (21 percent) would be nonfunctioning (an increase of 7 percent from 1993). (See Figure 4-4.)

Continued, season-long grazing on many mountain meadows would reduce vigor in native sedges and grasses, increase bare soil, increase grass species such as squirreltail (*Sitanion hystrix*), and increase forbs and shrubs. The overall acreage of mountain meadows would decline as native sedges (*Carex* spp.) and grasses are replaced by invading shrubs, trees, forbs, and non-native plants. The rate of change would depend upon changes in climate and fire management and on the degree of existing degradation, especially stream channel incision. Over the long term, implementing land management plans would slowly increase vegetation litter and palatable grass and forb density and vigor. Fine organic material should accumulate.

Concentrating on projects that directly benefit livestock, the use of Range Betterment Funds would remain the same, perpetuating current riparian habitat condition trends. Some Range Betterment Funds are spent to improve riparian resources, but this practice is infrequent and inconsistent from one area to the next. The overall decline in riparian resource conditions would overshadow local improvements financed by Range Betterment Funds.

With appeals automatically staying BLM's grazing decisions under Current Management, improper livestock grazing would continue to harm many riparian areas until appeals are resolved.

BLM and the Forest Service are developing promising ecosystem management policies but have not yet changed many existing regulations and practices. Under Current Management, neither agency is likely to implement consistent ecosystem management throughout its organization for years. Small, often uncoordinated riparian restoration efforts would continue, but overall, long-term riparian area degradation would also continue.

1 If unchanged, this downward trend in the amount and quality of  
2 riparian resources would contribute significantly to a slow long-  
3 term decline in biodiversity.

#### 4 **WATERSHED**

##### 5 **UPLAND**

6 In the short term, climatic variation would more affect upland  
7 watershed conditions than would Current Management. Cover,  
8 runoff, and accelerated erosion would only slightly change, and  
9 the upland drainage network would not improve.

10 In the long term, the most significant improvements would occur  
11 on allotments with progressive new management plans. The trend  
12 on upland watershed conditions on allotments without management  
13 plans would be static or slightly downward. As activity plans  
14 are implemented, upland watershed conditions would slowly and  
15 steadily improve. Vegetation and ground cover would increase  
16 slightly, and the physical properties of the soil would improve,  
17 leading to reduced runoff and erosion.

18 The current upland drainage network dominated by poorly vegetated  
19 gullies would slightly improve as grasses become reestablished in  
20 the gullies. Overall improvement would be slight, and the  
21 frequency and size of runoff events would little change.

22 The desert shrub, pinyon-juniper, and sagebrush communities with  
23 less than 10 inches of annual precipitation would respond slowly  
24 to management actions.

##### 25 **RIPARIAN/WETLAND/AQUATIC**

26 The overall hydrologic function of riparian-stream systems, would  
27 remain static or decline slightly from existing conditions.  
28 Accelerated erosion and runoff from uplands would decrease,  
29 slightly reducing erosional stresses and sediment loading to  
30 riparian-stream systems.

31 Even with an overall decrease in forage consumed by livestock and  
32 improved upland conditions, livestock would continue to  
33 congregate in and overgraze most riparian areas. Sediment  
34 discharge caused by streambank trampling in riparian areas would  
35 remain static or increase slightly over the long term. Livestock  
36 disturbance would continue to result in stream channels cutting  
37 or widening, causing the beneficial hydrologic functions of these  
38 riparian areas (floodplain function, water quality maintenance,  
39 flood peak reduction, and ground water recharge) to remain  
40 nonfunctioning or functioning but susceptible to degradation.  
41 Figures 4-4 and 4-5 show short- and long-term changes in riparian  
42 condition on BLM- and Forest Service-administered lands.

Stream-riparian systems where livestock use has resulted in riparian shrub and tree communities having low vigor and poor reproduction success would continue to produce sediment at or slightly above existing levels. Sediment rates would slightly increase from channel systems progressing through early stages of lateral or vertical (incised) channel instabilities from grazing disturbance. A continued decline of riparian woody vegetation would result in warmer water temperatures and lower dissolved oxygen levels.

Nonpoint-source water pollution generated by livestock grazing would slightly decrease from uplands and remain static or slightly increase from riparian areas. The progressive AUM reduction of 1 percent per year over the short and long term would slightly improve vegetation and ground cover on uplands, reducing accelerated erosion and overland flow. Consequently, sediment yields and other pollutants (fecal bacteria, salinity, and nutrients) carried by overland flow would slightly decline. Nonpoint-source salinity in the Colorado River basin, predominantly associated with runoff and sediment yields from desert shrub communities, would decline less than in other areas because of the slow vegetation response to management.

Nonpoint sources of pollution from riparian areas would vary from the direct disturbance effects of continued livestock use. Even with an expected overall reduction in forage grazed, livestock would tend to congregate in and overgraze riparian areas. Fecal pathogens and nutrient enrichment directly correlated with livestock numbers would slightly decline or remain static. Sediment produced from trampling of streambanks and riparian areas would remain static or slightly increase over the long term. Past or current livestock use would produce sediment at or slightly above existing levels in stream-riparian systems with low-vigor riparian shrub and tree communities or unstable channels.

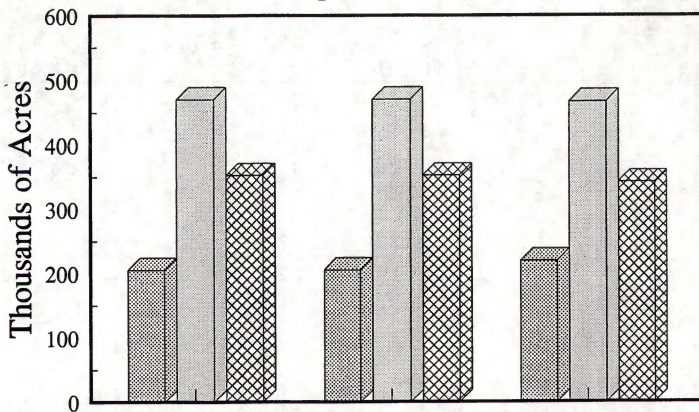
In summary, Current Management would not affect watersheds and water quality over the short term in local watersheds where livestock grazing is the main economic use. In the long term, however, where livestock grazing is the main economic use and where it occurs without appropriate controls or constraints, continued grazing could degrade the watershed and water quality. Degradation would continue if land management decisions are challenged in the courts and cannot be implemented until the issue is resolved. Within local ecosystems where livestock grazing is shared with other economic uses, Current Management would not affect watersheds or water quality in the short or long term.



Figure 4-4

# **Changes in Functioning Condition - BLM Riparian** **Current Management**

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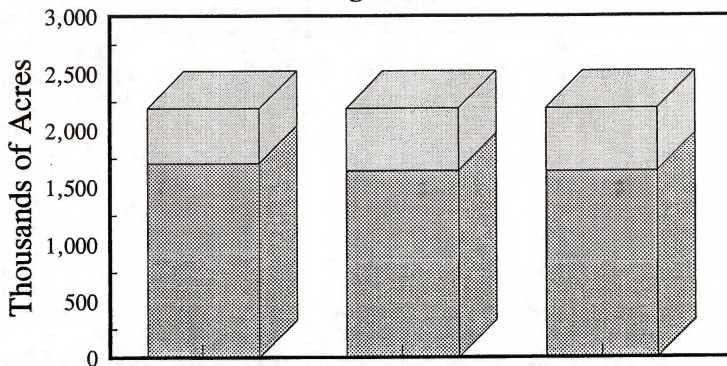


	1993 Estimated	Short Term	Long Term
Nonfunctioning	205.0	205.0	219.1
Functioning At Risk	470.3	470.3	466.8
Proper Functioning	353.1	353.1	342.5
Total Acres	1,028.4	1,028.4	1,028.4



Figure 4-5

## Change in Status - Riparian Forest Service Current Management



	1993 Estimated	Short Term	Long Term
Mtg/ Moving to Objectives	1,707.0	1,643.3	1,639.5
Not Meeting Objectives	484.3	548.0	551.8
Total Acres	2,191.3	2,191.3	2,191.3

## 1 WILDLIFE

2 Current livestock grazing regulations would limit BLM to  
3 penalizing grazing permittees only for violating the Endangered  
4 Species and Bald Eagle Protection Acts. The Forest Service's  
5 much broader regulations, which cover most environmental  
6 protection laws and state wildlife laws, would in some cases  
7 benefit local wildlife populations.

8 Many water developments on public land for livestock grazing  
9 allow wildlife access through ramps or overflows. Where BLM does  
10 not control the water, livestock watering facilities are often  
11 shut off when livestock are absent but wildlife could use the  
12 facilities.

13 Private water users seeking exclusive control of a water source  
14 on public lands for livestock grazing purposes would reduce  
15 habitat quality by promoting wildlife-livestock conflicts. It is  
16 anticipated, that these direct effects would be related to the  
17 intensity of use around these extremely important water sources  
18 and the resultant reduction of vegetation cover and forage.  
19 Increasing distribution and intensity of livestock use related to  
20 water diversions would often increase the intensity of livestock-  
21 wildlife conflicts.

22 Current Management would have a slow, long-term adverse effect on  
23 wildlife as a whole and biological diversity in general. Species  
24 that depend mainly on upland communities may benefit and increase  
25 in some areas as upland communities continue to improve. But  
26 most wildlife would be harmed by the slow continual decline in the  
27 condition of riparian areas.

28 All management actions somewhat affect overall wildlife values.  
29 In many cases these effects lack significance when viewed  
30 individually from a broad wildlife perspective. But implementing  
31 many actions that in and of themselves lack significant effects,  
32 may have cumulative effects over time. For example, current  
33 management often allows water sources, (wells, pipelines, tanks)  
34 to be developed for livestock grazing where no water was  
35 historically present. Although new water developments for  
36 livestock grazing have traditionally been believed to benefit  
37 wildlife generally, overall ecosystem function is subtly  
38 changing. In some areas species that evolved without surface  
39 water are being replaced by water-dependent species, resulting in  
40 altered ecosystem interactions and reduced biological diversity.  
41 As these practices continue, these subtle changes would become  
42 more obvious and costly, potentially resulting in more listings  
43 of threatened or endangered species.

44 Similarly, effects resulting from several federal management  
45 actions in a given area may result in cumulative effects not  
46 anticipated by individual NEPA analyses completed for each

1 proposed action. These cumulative effects could be potentially  
2 significant to wildlife, particularly special status plants and  
3 animals. Currently, no conflicting actions have been recognized,  
4 but some actions such as the possibility of implementing PACFISH  
5 (which is presently under development) and threatened or  
6 endangered species recovery plans might outweigh or negate the  
7 expected results of Current Management. BLM and to a lesser  
8 extent the Forest Service's inability to apply consistent  
9 management in an ecosystem approach would contribute to the long-  
10 term decline in riparian-dependent wildlife, including waterfowl,  
11 fish, and raptors.

12 In the Columbia Basin and Coastal analysis areas, some of the  
13 options in PACFISH (which is presently under development), if  
14 adopted and implemented, would much more highly restrict grazing  
15 management options for meeting objectives for riparian and  
16 anadromous aquatic habitats. Some provisions of PACFISH could  
17 significantly improve anadromous fisheries, and could overshadow  
18 implementing the Current Management alternative in managing  
19 riparian and aquatic resources.

## 20 **BIG GAME**

21 Land treatments and natural events would maintain the local  
22 diversity for big game habitat. General vegetation changes would  
23 favor species associated with upper seral stages. For example,  
24 in areas occupied by elk and mule deer, elk would be favored  
25 where vegetation moves toward a higher percentage of grasses. In  
26 the long term, big game populations would then move toward  
27 stability, but the proportion of habitats they would occupy would  
28 differ from what they now occupy. These vegetation trends would  
29 benefit bighorn sheep and elk, whereas pronghorn antelope and  
30 mule deer habitat conditions would generally decline due to a  
31 shift from brushy to herbaceous vegetation.

32 The quality of habitat would decline for riparian-dependent big  
33 game (see Figures 4-4 and 4-5), which would be less capable of  
34 maintaining populations. These species would have to rely on  
35 other, less-desirable habitats to replace riparian habitat  
36 component functions. For example, mule deer depend on riparian  
37 habitat for thermal and hiding cover provided by both vertical  
38 and horizontal vegetation structure and seasonally prolonged  
39 availability of succulent forage. These areas are especially  
40 important during fawn rearing. Dry and wet meadows provide  
41 valued foraging areas for bighorn sheep.

## 42 **UPLAND GAME AND NONGAME**

43 In the long term, Current Management would slightly improve  
44 upland and nongame populations associated with improved upland  
45 range conditions in some areas, especially for species inhabiting  
46 higher elevation rangelands that receive more precipitation and

1 respond faster to favorable management actions. This improved  
2 condition would stabilize but not increase existing nongame  
3 diversity. Some arid habitats would have no detectable long-term  
4 change.

5 Current Management has improved riparian habitats in limited  
6 areas, but projections show a long-term loss of functioning  
7 riparian areas. The amount of local recovery would not offset  
8 the overall downward trend of functioning riparian areas. This  
9 reduction in quality of riparian habitat would result in reduced  
10 abundance and diversity of upland and nongame.

#### 11 WATERFOWL

12 BLM and the Forest Service would continue to apply a variety of  
13 policies and resource management practices that would continue a  
14 slight long-term decline of waterfowl habitat on 3.9 million  
15 acres of riparian-wetland habitat and lake and reservoir surfaces  
16 and 112,000 miles of streams. The decline in waterfowl  
17 populations would parallel the long-term decline of the quality  
18 of riparian and aquatic habitats.

19 This decline would result from livestock damaging soil structure  
20 and residual plant cover by hoof action and trampling, and  
21 removing palatable protective plant cover, thus allowing  
22 unpalatable species to increase. Removing and trampling residual  
23 plant cover would reduce nesting attempts, brood rearing success,  
24 and waterfowl productivity.

#### 25 RAPTORS

26  
27 Under Current Management, many raptor populations have declined  
28 (Olendorff and Kochert 1992), including riparian-wetland-  
29 dependent raptors, such as the northern harrier. Upland-  
30 dependent-raptors, such as ferruginous hawks, have slightly  
31 increased.

32 Habitat conditions change slowly in arid uplands. A slight  
33 improvement in uplands would little increase populations of  
34 raptors that depend on the drier upland habitats for hunting:  
35 ferruginous hawks, golden eagles, prairie falcons, and burrowing  
36 owls.

37 The long-term decline in the quality of riparian habitat would  
38 result in overall long-term declines for raptor populations  
39 associated with large woody riparian vegetation such as  
40 cottonwoods and aspens. In riparian habitats where large woody  
41 vegetation was never a part of the normal vegetation composition,  
42 raptor populations would not significantly change.

43 Many cottonwood riparian habitats consist of only scattered  
44 mature and overmature trees with no young trees being



1 established. Habitat improvement without rest from grazing would  
2 be difficult to achieve. In some riparian habitats woody  
3 vegetation was a part of the presettlement condition but is now  
4 absent because of livestock grazing and other less widespread  
5 actions. These areas would not recover in the short term. Often  
6 more than 20 years would be needed to return them to cottonwood  
7 gallery forests, improving nesting and fledgling habitat for  
8 riparian-dependent raptors. These slow riparian habitat  
9 improvements would benefit species like red-tailed hawk,  
10 Swainson's hawk, merlin, great-horned owl, common black-hawk, and  
11 the sharp-shinned hawk.

## 12 **RESIDENT AND ANADROMOUS FISH**

13 Under Current Management, the current slightly upward trend in  
14 range condition ratings would continue in the uplands, resulting  
15 in slightly better watershed condition and improved water quality  
16 for resident fish. But current trends would continue on 3.2  
17 million acres of riparian habitat, and most aquatic habitats  
18 would decline because of livestock concentrating in these areas.  
19 Riparian and fishery habitat improvement projects would continue  
20 on a limited number of showcase or high-profile areas.

21 Current Management would significantly improve only about 20  
22 percent of the anadromous fish habitats on federal rangelands or  
23 habitats now rearing federally listed endangered and threatened  
24 anadromous fish. These populations would stabilize or even  
increase over the long term. Elsewhere, habitat condition would  
continue to be static or decline. In such areas, populations of  
many anadromous stocks would continue their present downward  
trends.

29 The declines would result from a combination of effects: habitat  
30 degradation, interbreeding with hatchery fish, competition with  
31 nonnative fish, overfishing, migration route blockage, increased  
32 predation on young fish, and increased isolation and  
33 fragmentation of suitable spawning habitats. The prospects of  
34 long-term population persistence would likely decrease for many  
35 anadromous fish stocks. Continued lack of habitat recovery on  
36 federal rangelands would contribute to overall declines because  
37 streams affected by grazing (low-gradient, meadow streams) make  
38 up a significant proportion of the sensitive environment used by  
39 salmon for spawning and rearing in the Northwest.

## 40 **SPECIAL STATUS SPECIES**

41 As riparian habitats continue to trend away from proper  
42 functioning condition, more species dependent on these habitats  
43 would be listed. For example, declines in the condition of  
44 riparian habitats, especially those with canopies of uneven-aged  
45 cottonwoods or other large riparian trees, would reduce habitat  
46 for the endangered bald eagle.



Current Management generally focuses on the recovery of species in occupied habitats rather than on managing for habitats where species no longer exist. Conservation efforts are generally localized, focusing on specific areas. In the long-term recovery of some listed species is expected in these areas following trends predicted for vegetation changes.

Most appealed grazing decisions would not be immediately placed in full force and effect. Short-term delays in implementing decisions could result in the incidental "take" of species in limited areas where management changes are attempted to protect or increase special status species. The term "take" is defined by the Endangered Species Act as follows: to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

#### WILD HORSES AND BURROS

The development of water sources on public lands has an impact on wild horse and burros. Changes in the management of water and other range improvements, such as placing restricting barriers around waters, can have a negative impact on wild horses and burros. Wild horses and burros might have to move to other water sources and compete for water with other grazing animals, including other wild horses. Overgrazing and damage to uplands and riparian or aquatic areas would result.

The concentration of more wild horses or burros would cause social behavior or interaction problems between bands, resulting in injuries, stress, and susceptibility to disease. These problems could in turn result in aborted foals and even the death of adult animals. To survive, wild horses and burros might be forced to use areas outside their herd areas.

The influence of grazing advisory boards with a focus on livestock production would continue to discourage wild horse and burro considerations in local resource management. Grazing advisory boards would continue to strongly influence type, location, design of range improvements, and spending of Range Betterment Funds.

The upward trends in upland vegetation previously described would benefit wild horses and burros through improved forage conditions.

#### RECREATION

Livestock grazing on federal lands would continue to affect scenic values, user experiences, and user permits at developed and undeveloped recreation sites. Most developed recreation sites are fenced from livestock and usually have a more natural setting and more vegetation than unfenced sites. Livestock,

however, tend to concentrate along fences, and concentration of livestock use would lower scenic quality by creating fenceline contrasts, denuding areas, and causing erosion by trailing.

The water quality of streams flowing through recreation sites would continue to decline, resulting in lower quality user experiences. The scope and amount of facility maintenance would increase as a result of soil erosion and livestock rubbing on fences. The presence of livestock, fecal matter, foul odors, and increased insects would degrade unfenced developed sites, assaulting some users' sense of aesthetics and creating health risks. Existing range improvements, poor vegetation, and soil erosion might constrain the developing of future recreation sites.

Since most people prefer camping within sight of water, undeveloped recreation sites lie mostly in riparian areas, where livestock lower both scenic values and the quality of user experiences. Under Current Management, livestock would affect undeveloped sites just as they would developed sites.

Range improvements, such as vegetation manipulation, would tend to degrade scenic qualities. Fenceline contrasts would also increase over time as more fences are built. Fences would inhibit the freedom of movement by motorized and nonmotorized users.

Commercial recreation would continue to be harmed. Some guides and outfitters say that grazing practices reduce the marketability of their services. Customers complain about the livestock and their adverse effects. This problem would worsen in the long term as user demands and sensitivity increase. Opportunities for guides and outfitters would be constrained by the downward trend in riparian conditions (see Figures 4-4 and 4-5), which would make streams less navigable and fishable.

Current management would also constrain single-event recreation permittees as range improvements, especially fences, would continue to restrict freedom of movement.

Historic grazing-related structures such as settlement-era corrals, cabins, barns, and other buildings would add to the scenic character of landscapes. And livestock themselves create a pastoral scene appreciated by some viewers. This limited aspect of the scenic value would remain unchanged in the short term but would decline in the long term as historic structures are lost.

#### WILDERNESS

The presence of range improvements in wilderness and wilderness study areas (WSAs) would lessen naturalness and primitive values,

disturbing solitude and unconfined recreation. The concentration of livestock in riparian areas and in some uplands would degrade vegetation and water quality and result in a lower quality recreation experience and a loss of research opportunities. The presence of livestock would also increase the possibility of undesirable plants being introduced and established.

#### CULTURAL AND PALEONTOLOGICAL RESOURCES

The general condition trends of cultural resources reported in Chapter 3 resulted not only from the building of range improvements but also from the cumulative direct effects of livestock grazing. Under Current Management, grazing permits would continue to inconsistently protect significant cultural resources from livestock grazing and construction of range improvements.

The Forest Service would suspend or cancel grazing permits for violations of cultural resource laws and regulations, but BLM would apply such penalties only for violations of the Bald Eagle Protection Act and the Endangered Species Act.

Because of their fragility, cultural resources could be damaged or destroyed by activities that modify the landscape. In riparian zones, where cultural resource sites and livestock tend to be concentrated, these sites would be most vulnerable. They would be damaged by trampling and susceptible to later loss through erosion. Overgrazing in riparian areas would also cause the loss of native food-source plants that provide lifeway values for Native Americans.

Upland cultural resources would be affected by concentrated grazing as described above but on a smaller scale. The building of range improvements in uplands, especially land treatment projects that disturb large areas, would destroy or modify cultural sites and also destroy some native food-source plants. Access developed for building many range improvements would increase the accessibility of these areas to all users. Cultural site values would then become susceptible to loss by vandalism, theft, impact from vehicles, and loss of integrity through altering natural settings. The tendency for livestock to rub against objects would damage historic structures and rock art.

Under Current Management, Range Betterment Funds would be used strictly for on-the-ground range improvements and not for project planning to inventory and evaluate potentially affected cultural resources.

Current Management would have the same effects on paleontological resources as on cultural resources.

#### ECONOMIC CONDITIONS

1 The impacts under Current Management, analyzed across a range of  
2 fee levels, result from a variety of trends affecting agriculture  
3 in general and livestock production in particular. (These trends  
4 are discussed in Chapter 3.) In addition, a variety of emerging  
5 issues might accelerate or offset ongoing trends in agriculture  
6 in the future.

7 Population growth and demographic changes in the West and in many  
8 western rural communities would continue to transform rural  
9 economies. Population growth in many rural communities, while  
10 contributing to economic growth and diversification, would  
11 continue to diminish the relative importance of agriculture in  
12 those communities. But economic diversification also offers more  
13 chances to earn off-ranch income and helps families maintain  
14 their ranches. Communities that continue to lose population and  
15 whose economies are in decline may be further strained by  
16 decreases in livestock production.

17 Land use changes, such as increased recreation use and  
18 subdivision of privately owned ranch lands, are both a cause and  
19 a result of trends in agriculture. Economically marginal ranches  
20 might be encouraged to sell to developers where the demand for  
21 rural homesites is increasing. As a result, agricultural  
22 production would further decline. Increased outfitter and guide  
23 activities, which encourage more recreational use of rural areas  
24 and offer more income-earning potential to ranches, might  
25 contribute to population growth and in turn accelerate changes in  
land use away from agriculture.

27 Land use changes could affect community tax bases. The impact to  
28 a local economy of a change in livestock production depends on  
29 the relative size and growth trends in other sectors of that  
30 economy. Where a relatively significant livestock industry  
31 declines, tax revenues have a high probability of declining. On  
32 the other hand, where other sectors of the economy are stable or  
33 growing and a relatively small decline occurs within a large  
34 livestock industry (or a large decline occurs within a small  
35 livestock industry), major impacts to the tax base are unlikely.

36 Changes in land use may accelerate the decline in public access  
37 to public lands where access depends on crossing private lands.  
38 Reduced access may increase the demand for land adjustment (such  
39 as land exchanges or easement acquisition) by BLM and the Forest  
40 Service to obtain more access to public lands.

41 Policies aimed at recovery of endangered species such as desert  
42 tortoises, anadromous fish, and grey wolves, would continue to  
43 affect livestock production by restricting livestock grazing in  
44 endangered species habitat. On the other hand, future activities  
45 designed to avert habitat loss and endangered species listings  
46 may help sustain livestock production in the long term.



1 Eliminating the Federal Government's wool subsidy program over  
2 the next 3 years could accelerate the decline in sheep production  
3 in the West and may cause marginal sheep producers to sell their  
4 operations. Other government policies, such as trade agreements  
5 aimed at reducing international trade barriers, will also  
6 continue to affect the industry. Agreements of this kind may  
7 both increase and decrease livestock production, but the  
8 direction and magnitude of these impacts is beyond the scope of  
9 this EIS. The expiration of Conservation Reserve Program (CRP)  
10 contracts beginning in 1996 might encourage the use of croplands  
11 for pasture, thereby increasing forage for livestock.

12 The most important direct and indirect economic effects that  
13 would result from implementing this alternative are discussed in  
14 the following sections.

## 15 REGIONAL ECONOMIC IMPACTS

16 This section describes estimated economic impacts to employment  
17 and income at the westwide (17 western states) level. Effects on  
18 employment and income would stem from two sources: reduced  
19 forage for livestock use and increased grazing fees for the  
20 remaining forage. Appendix N, MicroIMPLAN System and Methodology  
21 for Estimating Impacts to Employment and Income, describes the  
22 methodology used to assess the economic impacts.

23 Under Current Management, grazing use levels would decline by an  
24 average of 1 percent per year. These declines are based on trends  
25 over the past 10 years, which are projected to continue. Thus,  
26 federal forage grazed by livestock would decline 5 percent over 5  
27 years and by 20 percent over 20 years.

28 Employment and income impacts would be minor relative to current  
29 conditions and trends in the westwide economy as a whole and in  
30 the agriculture sector in particular. The economic impacts would  
31 occur in the context of a western economy that has shown  
32 consistent growth over the past 10 years and is expected to  
33 continue growing. Thus, continued growth in employment and  
34 income in other sectors would tend to overshadow the relatively  
35 small employment and income reductions from declines in livestock  
36 AUMs on public lands.

37 Table 4-1 shows the employment and income effects of the decline  
38 in livestock grazing under Current Management across all fee  
39 levels. After 5 years employment in the 17 western states is  
40 estimated to decline by 710 to 1,820 jobs<sup>1</sup> (about 0.05 percent of

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41 <sup>1</sup>The impacts for the BLM/Forest Service Proposed Fee are presented as a  
42 range between those caused by a \$4.28 fee and those caused by a \$3.72 fee. See  
43 Assumptions and Analysis Guidelines for more information.



- 1 total westwide agricultural employment under the current PRIA fee alternative 1, or 0.12 percent under regional-fees and competitive bidding, fee alternatives 4 and 7

Table 4-1: DECREASES IN EMPLOYMENT AND INCOME 5 AND 20 YEARS AFTER IMPLEMENTING CURRENT MANAGEMENT

	FEE LEVEL:						
	PRIA (CURRENT)	MODIFIED PRIA	BLM-FS PROPOSED	REGIONAL	FFF	PRIA WITH SURCHARGE	COMPETITIVE BIDDING
DECREASED EMPLOYMENT							
AFTER 5 YEARS:	710	1104	1233	1822	813	1111	1822
AFTER 20 YEARS:	2643	2975	3084	3579	2729	2981	3579
DECREASED INCOME (1993 \$):							
AFTER 5 YEARS (\$000):	\$ 28667	\$ 43263	\$ 48060	\$ 69883	\$ 32463	\$ 43508	\$ 69883
AFTER 20 YEARS (\$000):	\$106747	\$119038	\$123078	\$141455	\$109943	\$109943	\$141455

respectively). Under the BLM-Forest Service proposed fee formula (fee alternative 3), the decline is estimated to be between 1,111 to 1,230 jobs, or about .07 percent to 0.08 percent of total westwide agricultural employment. After 20 years, employment is estimated to decline by a range of 2,640 (jobs under the current PRIA fee) to 3,580 jobs (under regional fees and competitive bidding). Under the BLM-Forest Service fee proposal, the decline would amount to 3,080 jobs. The 20-year declines across all fee levels make up about 0.02 percent of total agricultural employment westwide. Job losses at all fee levels, however, would be insignificant at the westwide level. Some of the projected declines in employment would be absorbed through retirements and people seeking other types of work in the normal course of their lives.

Total income after 5 years is estimated to decline by a range of \$28.7 to \$69.9 million. (Under the current PRIA fee about 0.1 percent of total agricultural income westwide; under regional fees and competitive bidding about 0.2 percent.) Under the BLM-Forest Service fee proposal the decline would be between \$43.5 million and \$48.1 million (less than 0.2 percent) (See Figure 4-5a).

Total income after 20 years is estimated to decline by a range of \$106.7 to \$141.5 million. (Under the current PRIA fee about 0.3 percent of total agricultural income westwide; under regional fees and competitive bidding about 0.4 percent). Under the BLM-Forest Service fee proposal, the decline is estimated to be between \$119.3 and \$123.1 million (about 0.4 percent of total agricultural income westwide) (See Figure 4-5a). Table 1 in Appendix P, Change in Employment and Income After 5 Years and 20 Years of Implementation Under Different Fee Levels, contains more detailed information on employment and income impacts.

The location and intensity of impacts cannot be easily estimated. For example, over the long term in the Columbia Basin analysis area, BLM and Forest Service forage is estimated to decline by only 10 percent as opposed to 20 percent westwide. Forest Service forage in the Coastal analysis area would decline by a greater-than-average 30 percent over the long term. This 30 percent decline is not expected to create significant economic impacts since only 2 percent of total forage grows in that analysis area.

The impacts from reduced forage do not consider other factors that could mitigate overall impacts. For example, declines in employment and income from livestock forage reductions do not consider adjustment periods for phasing in higher grazing fees over a 3-year period or longer. Phasing in a higher fee would reduce the short-term impacts. Nor do these impacts account for the economy's ability to absorb gradual changes in grazing use levels over time (i.e. 1 percent per year over 20 years) as

opposed to a sudden 20 percent decline in forage in 1 year. Further, increases in Range Betterment Funds from higher grazing fees may improve wildlife and fisheries habitat, thus increasing recreational opportunities and related economic activity.

#### RANCH INCOME AND OPERATION IMPACTS

This section describes the impacts to ranch operations and ranch income resulting from changes in livestock grazing on federal lands and increases in grazing fees. Impacts are described for three hypothetical herd sizes: 425 cows, 210 cows, and 90 cows. Impacts are also considered for two levels of federal forage dependency for each of these three operations: 60 percent and 30 percent. Appendix O, Changes in Ranch Returns from Reduced AUMs and Higher Grazing Fees, describes the methodology used to assess the impacts to ranch operations.

One impact common to all alternatives in this EIS is that herd sizes would decrease as access to federal forage is reduced (although the extent of the decreases would vary by alternative, depending on the reduction in federal forage). Further, all else being equal, net cash return would decrease as herd sizes decrease.

Under Current Management, federal forage grazed by livestock would decrease by 5 percent after 5 years and by 20 percent over 20 years. A westwide average, these figures do not necessarily represent the forage reductions estimated for all ranching operations. Table 4-2 shows the losses in net cash returns (cash receipts minus expenses) to the six hypothetical operations over the short and long term as a result of reduced forage. These impacts are shown for the current PRIA fee level (\$1.86), the BLM-Forest Service proposed formula (\$3.96)<sup>2</sup>, and the weighted average regional fee level (\$6.38).

In this analysis, the herd size of 425 cows and a 60 percent dependency on federal forage would be most affected. In the short term, a 5 percent reduction in forage at the current fee level would decrease net cash returns by \$1,100. At \$3.96/AUM, net cash returns would decline by \$8,200 in the short term. And, at \$6.38/AUM, net cash returns would decline by \$14,300 in the short term.

In the long term, a 20 percent reduction in forage at the current fee level would decrease net cash returns by \$4,600. At \$3.96/AUM, net cash returns would decline by \$10,500 in the long

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<sup>2</sup>The analysis for the BLM/Forest Service Proposal is actually based on a \$4.28 fee. \$4.28 is the value that would be produced with a FVI of 1.08. See Assumptions and Analysis Guidelines for more information.

1 term. And, at \$6.38/AUM, net cash returns would decline by  
\$15,600 in the long term.

3 This operation, with a herd size of 425 and 60 percent dependency  
4 on federal forage, is assumed currently to use 3,060 animal unit  
5 months (AUMs) ( $425 * 12 \text{ months} * 0.6$ ). The operation would use  
6 2,900 AUMs after 5 years and 2,450 AUMs after 20 years. Although  
7 the income impacts might be significant for this and other  
8 operations with a large amount of federal AUMs, only 8 percent of  
9 BLM permits and 4 percent of Forest Service permits authorize  
10 more than 2,000 AUMs. Seventy-five percent of BLM permits and  
11 more than 50 percent of Forest Service permits allow no more than  
12 500 AUMs.

13 The 90-cow operation with a 60 percent federal forage dependency  
14 depicted here is most closely associated with the permit size  
15 category of 500 or fewer AUMs. This operation is assumed now to  
16 use 650 AUMs ( $90 * 12 \text{ months} * 0.6$ ). The 210-cow operation with  
17 30 percent dependency and about 760 AUMs is also representative  
18 of this permit size category.



Table 4-2: IMPACTS TO RANCH OPERATIONS UNDER CURRENT MANAGEMENT

Alternative 1: Current Management	Ranch Attributes			Herd Impacts	Net Cash Returns Lost		
	Herd Size	Percent Dependency on Federal Forage	Percent AUM Reduction	# of Cows Lost Per Permitted Herd	Due to Smaller Herd Size <sup>a</sup>	At \$3.96/AUM <sup>b</sup>	At \$6.38/AUM <sup>c</sup>
Year 5	425	60.0	5.0	13.3	\$1,144	\$8,179	\$14,284
	425	30.0	5.0	6.6	568	4,085	7,138
	210	60.0	5.0	6.6	568	4,044	7,061
	210	30.0	5.0	3.3	284	2,022	3,530
	90	60.0	5.0	1.0	86	1,576	2,869
	90	30.0	5.0	0.5	43	788	1,434
Year 20	425	60.0	20.0	53.0	4,558	10,482	15,623
	425	30.0	20.0	26.5	2,279	5,241	7,811
	210	60.0	20.0	26.2	2,253	5,180	7,720
	210	30.0	20.0	13.1	1,127	2,591	3,861
	90	60.0	20.0	4.0	344	1,599	2,687
	90	30.0	20.0	2.0	172	799	1,344

<sup>a</sup>Net cash returns lost at current fee level.

<sup>b</sup>Net cash returns lost due to herd size reductions plus increased fee (to \$4.28/AUM) on remaining federal forage. This analysis for the BLM/Forest Service Proposal of \$3.96 is based on a \$4.28 fee. \$4.28 is the value that would be produced with a FVI of 1.08 instead of an FVI of 1 as proposed. See Assumptions and Analysis Guidelines for more information. The impacts presented here are overstated by 5 to 10 percent.

<sup>c</sup>Net cash returns lost due to herd size reductions plus increased fee (to \$6.38/AUM) on remaining federal forage. \$6.38/AUM is the average value of the regional fees (weighted by the number of AUMs in each state charged at each fee level).

1 Although the main adjustment permittees make to reduced federal  
forage would be to decrease their herd sizes, several other  
responses are possible: substituting other forage (leasing more  
4 private pasture), using supplemental feed (hay), increasing the  
productivity of private lands (pushing ditches further up the  
5 sideslopes or installing wells and center pivot sprinkler systems  
6 to increase vegetation on private property), or reserving  
7 vegetation for livestock that now goes to wildlife (fencing elk  
8 off bottomlands so cattle have exclusive use; encouraging federal  
9 agencies and state game officials to install wildlife bait  
10 stations to keep elk and deer in the uplands to reduce  
11 competition for forage). These responses could somewhat offset  
12 losses of federal forage.  
13

14 Reductions in federal forage would tend to have a greater effect  
15 on permittees most highly dependent on federal forage to meet  
16 their total feed requirements. The impact of the reductions  
17 would vary with the financial condition of the ranch.  
18 Unprofitable operations would be further stressed by reductions  
19 in federal forage and higher grazing fees. The more profitable  
20 an operation, the greater its ability to deal with higher fees  
21 and reduced access to federal forage.

22 The effect of reduced federal forage and higher grazing fees  
23 would also depend on a ranch's flexibility in finding and  
24 purchasing alternative forage sources. Ranches with the fewest  
25 alternatives and least flexibility would reduce their livestock  
the most. Even ranches not greatly dependent on federal forage  
could be stressed by forage reductions if they cannot find  
26 suitable and affordable alternative forage.  
27

28  
29 The impacts of reduced federal forage and higher grazing fees  
30 could be somewhat lessened by phasing in an increase in grazing  
31 fees over a 3-year period or longer. Additionally, the gradual  
32 reduction in federal forage over the long term would also give  
33 permittees a chance to adjust their operations. Other potential  
34 mitigating measures that could lessen impacts would be a two-  
35 tiered grazing fee system under which small family ranches might  
36 pay a lower fee than larger commercial ranches, or an incentive-  
37 based fee system under which permittees would be given financial  
38 or other incentives for good stewardship practices. Increases in  
39 Range Betterment Funds resulting from higher grazing fees might  
40 also help mitigate losses to ranches by funding more improvements  
41 that benefit livestock.

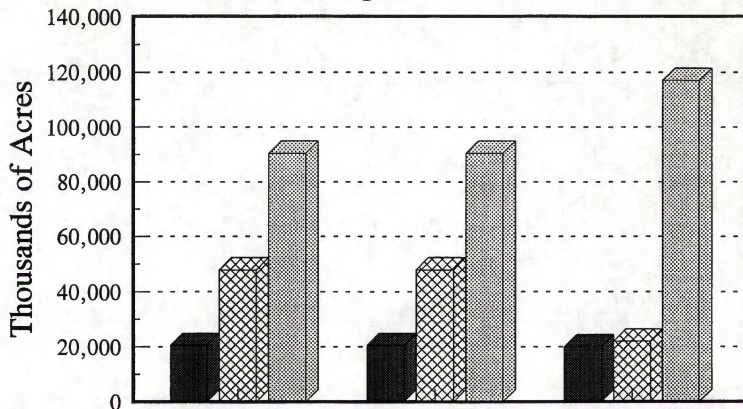
#### 42 GRAZING FEE RECEIPT AND PAYMENT IMPACTS




43 Table 4-3 shows changes in grazing fee receipts under Current  
44 Management at all fee levels. Under the current PRIA fee,  
45 receipts would decline by 5 percent over 5 years (\$1.5 million)  
46 and 20 percent over 20 years (\$6.2 million) from current  
47 conditions.

Figure 4-3

# Changes in Functioning Condition - BLM Uplands

Current Management



	1993 Est.	Short Term	Long Term
Nonfunctioning 	20,500	20,500	20,000
Functioning at Risk 	48,000	48,000	22,000
Functioning 	90,500	90,500	117,000
Total Acres	159,000	159,000	159,000

Under all other fee levels, grazing fee receipts would increase over current conditions. The federal forage fee (alternative 5) would generate the lowest increases over time: \$6.3 million in 5 years (21 percent) and \$468,000 in 20 years (2 percent). Regional fees (alternative 4) would generate the greatest increases over time: \$69.5 million in 5 years (226 percent), and \$53.7 million in 20 years (174 percent). The BLM-Forest Service fee proposal (alternative 3) would generate increases between these two extremes: \$36.5 million in 5 years (119 percent, or slightly more than double over the current estimated level of receipts of \$30.8 million), and \$25.9 million in 20 years (84 percent).

Table 4-3 shows the distribution of receipts to Range Betterment Funds, payments to states and counties, and revenues to the U.S. Treasury. Assuming that the distribution of grazing fee receipts remains the same, these three categories would increase by the same percent. Table 4-3 also shows grazing fee receipts separately for both BLM and the Forest Service.

For total grazing fee receipts under all fee levels, see Table 1 in Appendix Q, Current Management: Total Grazing Fee Receipts After 5 Years and 20 Years Under Different Fee Alternatives.

## **SOCIAL CONDITIONS**

### **PERMITTEES**

In the short term under Current Management, losses in income experienced by the average permittee (with a herd size of 210 cows and a 30 percent dependency rate) would be \$284 annually at the current fee level; \$2,022 at \$3.96/AUM; and \$3,530 at \$6.38/AUM. In the long term, the losses for the same average permittee would be \$1,127 annually in income at the current fee level; \$2,591 at \$3.96/AUM; and \$3,861 at \$6.38/AUM. (See Table 4-2, Impacts to Ranch Operations Under Current Management.)

Some permittees would have greater losses than the average. Others would have smaller losses. The size of the loss for any permittee would depend on the size of the operation, the dependency on federal forage, the amount of forage lost, and the grazing fee. The effect of the loss on any individual permittee would vary by the size of the loss, the financial condition of the operation, and the dependence of the ranch family on the operation.

Losses in ranch income could result in declines in the economic well-being of affected permittees and their families. Lifestyle changes in response to the income loss could include families decreasing their spending, diversifying the operation to make it less dependent upon ranching, or sending family members to work off the ranch to bring in more income. Most permittees would try to adjust their operations to absorb the income losses rather



1 than sell their ranches because maintaining the ranching  
2 lifestyle is important to them.

3 Under Current Management at the current fee level, losses in  
4 forage would continue the losses permittees are now experiencing.  
5 Permittees would have time to adjust to the long-term decline in  
6 forage. At the higher fee levels, income would decline. See the  
7 Social Conditions in the Impacts Common to All Alternatives  
8 section at the beginning of Chapter 4 for a discussion of the  
9 social consequences to permittees from lifestyle changes and  
10 reductions in income.

11 Rangeland Reform '94 scoping comments from many permittees and  
12 ranch industry representatives reported a belief that current  
13 management does not need a change in direction. Comments state  
14 that since the enactment of the Taylor Grazing Act, the Federal  
15 Land Policy Management Act of 1976, and the Public Rangeland  
16 Improvement Act of 1978, the condition of federal rangelands has  
17 consistently improved. Implementing Current Management would say  
18 to most permittees that the agencies managing the federal lands  
19 agree with their perception that management is progressing  
20 satisfactorily. Groups highly concerned about existing rangeland  
21 conditions, however, would disagree with this conclusion, and  
22 existing stressful interactions between these groups and ranchers  
23 would continue.

#### 24 COUNTRIES AND COMMUNITIES

25 Job losses at all fee levels would be insignificant on a westwide  
26 basis. Most of the projected decline in employment would be  
27 absorbed through retirements and people seeking other types of  
28 work in the normal course of their lives.

29 Westwide in the short term under Current Management, 710 jobs  
30 would be lost at the current fee level, between 1,111 and 1,230  
31 jobs would be lost at \$3.96/AUM, and 1,820 jobs would be lost at  
32 \$6.38/AUM. In the long term, 2,460 jobs would be lost at the  
33 current fee level, 2,980 and 3,080 jobs would be lost at  
34 \$3.96/AUM, and 3,580 jobs would be lost at \$6.38/AUM. These  
35 losses represent jobs in all sectors of the economy--ranch  
36 employment as well as jobs directly and indirectly related to  
37 ranching. At the current fee level, these job losses represent a  
38 continuation of ongoing trends.

39 For some communities like the "typical small community" described  
40 in Chapter 3, Current Management at the current fee level  
41 represents a continuation of the ongoing trend of slow population  
42 loss. At the higher fee levels, the ongoing trend could be  
43 accelerated. The potential effects of job and population loss on  
44 local communities are described under Social Conditions in the  
45 Impacts Common to All Alternatives section at the beginning of  
46 Chapter 4.



1 The long-term decline in federal forage would not affect the  
2 social environment of larger communities such as Rawlins,  
3 Wyoming, and Gunnison, Colorado, because permittees and other  
4 residents would have time to adjust to the changes in forage.  
5 Grazing fee increases would be highest in areas with a high  
6 average dependency on federal grazing, such as Gunnison County.  
7 The effects of these fee increases would depend on the financial  
8 condition of local ranches and local economic conditions. In  
9 areas where there are few permittees, the community population is  
10 large, and the economy is diverse, fee increases would be  
11 insignificant at the county and community level.

12 In many areas such as Carbon County, Wyoming, adopting the  
13 Current Management alternative is consistent with the desires of  
14 permittees and residents, who feel that range condition has been  
15 improving and Current Management should be continued. Even  
16 though recreation quality would decline in the long term under  
17 this alternative, most local recreationists and those promoting  
18 recreation as a way to diversify county economies would probably  
19 favor Current Management because permittees and the local  
20 community would not be greatly affected.

21 In other areas such as Gunnison County some local recreationists  
22 and environmentalists might feel that more should be done to  
23 protect recreation, riparian, and wildlife resources. In the  
24 short term, differences in opinions and values could result in  
25 less cooperation and support among groups within these  
26 communities.

#### 27 NATIONAL IMPACTS

28 Increasing numbers of people in the West and across the country  
29 believe that rangeland management should emphasize protecting  
30 rangeland resources rather than managing livestock. The Current  
31 Management alternative is inconsistent with these attitudes.  
32 People who disagree with the selection of the Current Management  
33 alternative might feel powerless toward and frustrated about  
34 government in general, BLM and the Forest Service, and the  
35 policymaking process.

36 Generally, recreationists and environmentalists would not support  
37 Current Management because of long-term declines in riparian and  
38 wildlife habitat and recreation opportunities, such as camping  
39 and fishing. The condition of these resources is important to  
40 these groups because they value these resources as potential  
41 recreation areas, and many appreciate just knowing that these  
42 areas exist and will continue to exist in the future.

43 Increasing numbers of people across the country, including some  
44 ranchers who are not permittees, believe that livestock grazing  
45 fees should be increased. Raising grazing fees would be  
46 consistent with these attitudes.

## ALTERNATIVE 2: PROPOSED ACTION

### GRAZING ADMINISTRATION

#### LIVESTOCK USE LEVELS

Figure 4-6 shows potential short- and long-term levels of livestock use under the Proposed Action on BLM- and Forest Service-administered lands. These trends are based in part on current background trends and also on estimated condition levels of functioning, functioning but susceptible to degradation, and nonfunctioning acres of BLM uplands and riparian areas and Forest Service data on acres of land meeting or not meeting forest plan objectives.

The forage BLM would authorize for livestock grazing would decline by 16 percent in 5 years and by 21 percent in 20 years. The amount of forage the Forest Service would authorize for livestock grazing would decline by 6 percent in 5 years and 19 percent in 20 years.

BLM's significant short-term reduction in forage authorized for livestock grazing would result from implementing standards and guidelines. Many areas would be classed as nonfunctioning and would have periods of rest incorporated into management schemes in the short term. Grazing would be reinstated as these areas move from nonfunctioning to functioning condition. Nonfunctioning areas would improve over the long term.

#### PROGRAM EFFICIENCY AND EFFECTIVENESS

BLM's workload would increase in the short term as it develops and implements regional standards and guidelines, including regional National Environmental Policy Act (NEPA) analyses. But in the long term, regional standards and guidelines would help to focus BLM's management direction, promote biological diversity, and improve agency efficiency in meeting management objectives.

The Forest Service would strengthen its ability to implement forest plan standards and guidelines by making them a condition of grazing permits. Where there are no forest plan or site-specific project decision standards and guidelines to incorporate in the grazing permit, the Forest Service would issue a temporary permit for 3 years to allow livestock grazing to continue while standards and guidelines are developed. Developing standards and guidelines would be subject to National Environmental Policy Act and National Forest Management Act compliance. Continuing livestock grazing while standards and guidelines are being developed would not change environmental effects from those under Current Management. Incorporating standards and guidelines into a new term grazing permit would improve rangeland conditions.

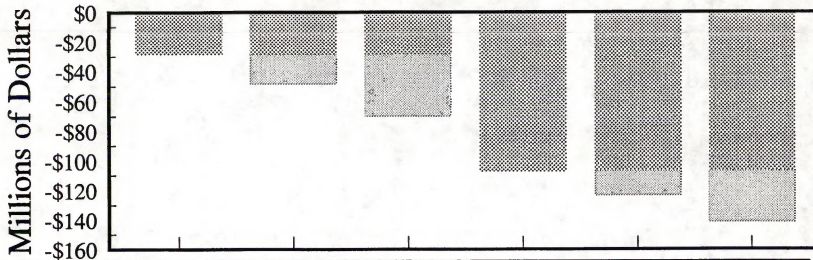
1 More extensive and consistent public involvement would eventually  
2 help the agencies make decisions more reflective of (and  
3 acceptable to) a wider range of public interests and thus might  
4 reduce appeals in the long term.



5 Several other proposed grazing regulation changes would allow BLM  
6 and the Forest Service to gain efficiency and consistency,  
7 although agency regulations for leasing and advisory groups would  
8 remain inconsistent. BLM's efficiency and effectiveness would

Figure 4-5a

# Reductions in Income

## Livestock Industry Current Management



Alternative	Short Term PRIA	Short Term Proposal	Short Term Regional	Long Term PRIA	Long Term Proposal	Long Term Regional
Management Actions 	-29	-29	-29	-107	-107	-107
Fee 	0	-19	-41	0	-16	-35
Total	-29	-48	-70	-107	-123	-141

BLM and Forest Service Permittees Only

improve as a result of proposed changes covering base property leases, livestock pasturing agreements, unauthorized use, appeal of grazing decisions, range improvement ownership, disqualification, and implementing of national requirements and regional standards and guidelines or the fallback standards and guidelines. The Forest Service would improve its efficiency and consistency by changing regulations and policies for unauthorized use, foreign corporations, eligibility for holding grazing permits, disqualification, and implementing ecosystem management principles.

In the short term the number of base property and livestock leases would decrease as surcharges discourage BLM permittees from entering into such leases. But as permittees adjust to the surcharges, the number of leases could return to current levels. The 3-year minimum requirement on base property leases would reduce the number of grazing permit transfers processed each year.

Forest Service livestock and land ownership requirements would not change, and BLM and Forest Service leasing fee regulations would remain inconsistent.

BLM and the Forest Service would increase their efficiency and reduce their administrative workload by using the authority for nonmonetary settlements where the unauthorized use is clearly incidental, only slight forage has been consumed, and natural resources have not been affected. This change would make BLM and Forest Service regulations and practice consistent.

The Forest Service would improve its ability to control repeated unauthorized grazing, although such problems are not widespread. Under the Proposed Action, the Forest Service could effectively penalize violators. In the long term the authority to issue harsher penalties should help deter repeated unauthorized use, resulting in an administrative workload more focused on cooperation. Most importantly, natural resources previously overused due to unauthorized use would recover and improve.

By defining authorized use to include livestock grazing, personal convenience nonuse, and conservation use, BLM would clarify to livestock permittees what is authorized. Permittees would not need to worry about losing their permits because of conservation use. The Proposed Action would also trim the administrative workload since conservation use would be incorporated into the conditions of grazing permits, thereby alleviating an annual assessment and approval. Forest Service regulations would not change, and the BLM's change would make its policies consistent with the Forest Service's.

Tracking and maintaining records of suspended nonuse would continue to create administrative inefficiency. Implementing



1 procedures that would end the automatic staying of appealed  
2 decisions would allow most decisions to take effect within 75  
3 days. This decrease in stayed agency decisions would allow the  
4 agencies to rapidly adjust forage allocations, revise prescribed  
5 management, and make other administrative changes needed to  
6 maintain the standards and guidelines. Forest Service appeal  
7 procedures would not change.

8 Few livestock permittees have violated federal regulations to the  
9 point of having their permits canceled. Not allowing those  
10 permittees to apply to BLM and the Forest Service for new permits  
11 after their old ones have been canceled would help eliminate the  
12 need for continual adverse actions. The possibility of not being  
13 able to hold a permit for 3 years would encourage better  
14 cooperation from these operators and result in improved  
15 cooperation between the agency and the permittee. Improved  
16 management would also reduce the amount of regulatory workload  
17 for dealing with poor stewardship and improve both agencies'  
18 abilities to implement prescribed management.

19 Including violations of other state and federal laws into BLM's  
20 definition of prohibited acts would deter BLM permittees from  
21 violating state and federal laws and standards. Few permittees  
22 violate these laws. Nevertheless BLM's workload could increase  
23 during the first 5 years, depending on the number violators, but  
24 taper off within the next 5 years as permittees become familiar  
25 with the regulations and understand the consequences of losing  
26 their permits for violations. The Forest Service already has this  
27 provision as part of its grazing permits, and the associated  
28 administration workload has not been significant.

29 Under the Proposed Action, both BLM and Forest Service permittees  
30 would have to show that they are good land stewards to qualify  
31 for additional animal unit months (AUMs) of forage. As a result,  
32 both agencies would have reduced administrative workloads, having  
33 to process fewer resource decisions, appeals, and administrative  
34 penalties because of improved permittee management.

35 Multiple resource advisory councils under the Proposed Action  
36 would make a more balanced contribution to BLM policy and  
37 decisionmaking than would grazing advisory boards under Current  
38 Management. The administrative workload would be lessened by  
39 fewer appeals from those who perceive that BLM has not considered  
40 all pertinent information when making its decisions.

41 The Forest Service would not have grazing advisory boards under  
42 the Proposed Action, but local Forest Service units could  
43 participate in BLM multiple resource advisory councils.

44 The change in policy on the ownership of rangeland improvements  
45 would at first discourage some BLM permittees from investing  
46 their own money in range improvements and prevent BLM from

1 spreading its Range Betterment Funds as far as it otherwise  
2 could. As a result, fewer improvements would be developed in the  
3 short term. But as the new policy becomes more accepted over  
4 time, long-term permittee investment would rise.

5 As more BLM offices become involved in ecosystem management,  
6 budget allocations would change. State Directors would have more  
7 flexibility in allocating funds to areas with the most critical  
8 needs, not only with Range Betterment Funds but other  
9 appropriated funds. Forest Service and BLM Range Betterment Fund  
10 allocation policies would then be consistent.

11 Initially, in the implementing of ecosystem management more  
12 short-term work would be needed for developing agency initiatives  
13 and goals. In the long term, however, a more holistic and  
14 interdisciplinary process would more efficiently and equally  
15 address the needs of the environment and of public land users.

#### 16 AVAILABILITY AND USE OF RANGE BETTERMENT FUNDS

17 Under the Proposed Action, Range Betterment Funds going to BLM  
18 and the Forest Service would depend on the grazing fee formula  
19 selected for implementation. For example, if the current grazing  
20 fee formula is retained, Range Betterment Funds would decline by  
21 21 percent (from a 3-year average of \$15.4 million per year to  
22 \$12.2 million per year) over the long term. This decline would  
23 result from a projected decline in livestock use on federal lands  
24 (discussed in the preceding section), and an accompanying decline  
25 in grazing fee receipts.

26 A 21 percent decline in Range Betterment Funds, assuming the  
27 grazing fee remains constant, coupled with rising costs for range  
28 improvements, would generally mean that far fewer range  
29 improvements could be built in the future. Furthermore, this  
30 funding would continue to be needed to rebuild existing projects  
31 where the agency has the responsibility.

32 Alternative sources of funding, including increased permittee  
33 contributions, agency appropriations, and contributions from  
34 other sources, would become more important just for maintaining  
35 the current level of management. Without such funding, some  
36 existing fences and water development for livestock grazing on  
37 public lands would eventually fall into disrepair. Livestock use  
38 would become increasingly difficult to manage. Fewer allotment  
39 management plans would be implemented each year. And progress in  
40 meeting a wide range of resource management objectives would be  
41 slowed. Riparian habitat and other resource conditions would  
42 deteriorate at an accelerating rate, and this deterioration could  
43 eventually result in the need to reduce livestock use even more  
44 than currently projected.

1 But reduced funding would be somewhat offset by the agencies'  
2 having more flexibility to distribute funds to priority areas and  
3 more authority to use funds to meet more resource management  
4 priorities, including monitoring.

5 Under the BLM-Forest Service proposed grazing fee or regional  
6 fees, Range Betterment Funds would increase by 82 percent (to \$28  
7 million per year) or 171 percent (to \$41.7 million per year),  
8 respectively. Such large increases in these funds would more  
9 than offset rising range improvement costs and would generally  
10 mean that more range improvements could be built, maintained, and  
11 rebuilt. Such increased funding would be coupled with expanded  
12 authority to use Range Betterment Funds to meet a wider range of  
13 priorities and more flexibility in distributing funds to priority  
14 areas. As a result, monitoring of resource conditions could  
15 increase, and the agencies could invest in large restoration  
16 projects, such as the conversion of extensive stands of  
17 cheatgrass or other noxious weeds.

18 Over the long term, higher funding levels would greatly increase  
19 the agencies' abilities to implement, maintain, and monitor the  
20 effectiveness of range improvements for achieving more resource  
21 management objectives than are now possible. The need for  
22 alternative sources of funding would correspondingly decrease.

#### 23 VEGETATION

24 Under the Proposed Action, nonuse for conservation would help  
25 improve upland and other vegetation conditions. Instead of  
26 adjusting permit conditions through the decisions and appeals  
27 process, the agencies could make extended nonuse a condition of  
28 grazing permits and use it as a management tool.

29 Fifty percent of BLM Range Betterment Funds available for range  
30 improvements would be allocated according to state priorities,  
31 leading to faster improvement of ecosystem health and  
32 biodiversity. Currently, 50 percent of Range Betterment Funds in  
33 the Forest Service can be allocated by regional foresters.

34 By permitting Range Betterment Funds to be used for project  
35 planning and environmental analysis, the Proposed Action would  
36 allow for faster implementing of priority projects. Using funds  
37 for monitoring would ensure that projects are effective and would  
38 improve future planning of similar projects. Using funds to meet  
39 all resource management objectives on federal rangelands would  
40 allow spending based on ecosystem management priorities rather  
41 than mainly for livestock management needs. This change in  
42 priority would increase the consideration of biodiversity on  
43 federal rangelands.

44 Expanded opportunities for a broader range of public involvement  
45 would increase the diversity of viewpoints and ideas, which would

1 lead to recognizing more opportunities for grazing management to  
meet local and site-specific objectives for upland vegetation.

3 Ecosystem management would emphasize biodiversity, ecosystem  
4 processes, water quality, soil productivity, and wildlife  
5 habitats and place less emphasis on livestock production.  
6 Ecosystem health and biodiversity would improve in the long term.

7 Making the Forest Service's penalties for willful and repeated  
8 willful unauthorized use consistent with BLM policy would help  
9 deter unauthorized use, reducing damage to upland and other  
10 vegetation. This impact, while locally significant, would have  
11 minor effects nationally.

12 By allowing appealed rangeland decisions to be implemented with  
13 fewer delays, the Proposed Action in the short term would benefit  
14 the resources involved in the decision. The Proposed Action would  
15 prevent upland vegetation ecosystems from crossing in the short  
16 term into a lower successional stage that would be difficult or  
17 even impossible to reverse.

#### 18 **UPLAND**

19 In the long term, about 60,174,000 acres (82 percent) of Forest  
20 Service uplands would either be meeting objectives or moving  
21 towards objectives (an increase of 2 percent from 1993). Another  
22 13,018,000 acres (18 percent) would not be meeting objectives (a  
decrease of 9 percent from 1993). (See Figure 4-7.)

24 In the short term, BLM upland acres in proper functioning  
25 condition would slightly increase, upland acres functioning but  
26 susceptible to degradation would slightly decrease, and upland  
27 acres in nonfunctioning condition would decrease by about 5  
28 percent.

29 In the long term, BLM upland acres in proper functioning  
30 condition would be about 138,000,000 acres (87 percent) (an  
31 increase of 55 percent from 1993), upland acres functioning but  
32 susceptible to degradation would be about 6,000,000 acres (4  
33 percent) (a decrease of almost 90 percent), and upland acres in  
34 nonfunctioning condition would be about 15,000,000 acres (9  
35 percent) (a decrease of 30 percent). Figure 4-8 shows estimated  
36 changes to upland functioning condition.

#### 37 **Sagebrush**

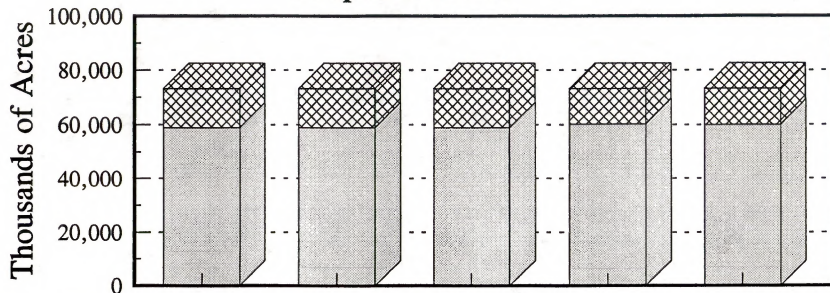
38 Implementing standards and guidelines would improve properly  
39 functioning condition, ecological condition, and trend in  
40 sagebrush communities. In the long term, perennial grasses and  
41 forbs would increase faster in areas that have 12 or more inches  
42 of annual precipitation. The amount of palatable browse would  
43 slightly increase under the ecosystem approach to management and



Figure 4-7

# Change in Status - Forest Service Uplands

## Proposed Action





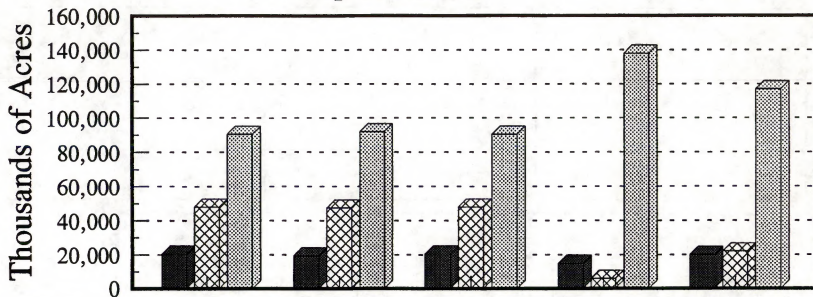
	1993	PA Short Term	CM Short Term	PA Long Term	CM Long Term
Met/Moving To Objectives 	58,868	58,868	58,868	60,174	59,949
Not Meeting Objectives 	14,324	14,324	14,324	13,018	13,243
Total Acres	73,192	73,192	73,192	73,192	73,192






Figure 4-8

# Changes in Functioning Condition - BLM Uplands

Proposed Action



	1993 Est.	PA Short Term	CM Short Term	PA Long Term	CM Long Term
Nonfunctioning 	20,500	19,500	20,500	15,000	20,000
Functioning at Risk 	48,000	47,500	48,000	6,000	22,000
Functioning 	90,500	92,000	90,500	138,000	117,000
Total Acres	159,000	159,000	159,000	159,000	159,000

3 areas having 12 inches or more annual precipitation. Sagebrush  
4 areas having 10 inches or less annual precipitation would not  
5 significantly improve except for the nonfunctioning areas  
6 receiving vegetation manipulation treatments. Trend in the lower  
7 precipitation areas would not significantly change over the long  
8 term.

#### 9 Desert Shrub

10 Removing livestock and changing grazing practices, consistent  
11 with standards and guidelines for nonfunctioning desert shrub  
12 ecosystems, would result in an immediate plant response. Improved  
13 plant vigor would be the first sign of change. But recovery after  
14 misuse might be almost imperceptible after many years in  
15 nonfunctioning desert shrub habitats. Cryptobiotic crusts would  
16 fill in more of the interspaces between plants. Forbs, grasses,  
17 and shrubs would increase over time.

18 Changes in ecological status and trend would be slow because of  
19 low precipitation and high soil salinity. Ecological conditions  
20 and trend in functioning areas would increase faster than those  
21 in nonfunctioning areas. The Proposed Action would allow  
22 nonfunctioning areas to improve faster than they would under  
23 Current Management. Natural revegetation, however, is a long-  
24 term process that cannot be induced in areas of low precipitation  
25 and high salinity.

#### 26 Southwest Shrubsteppe

27 Although the general trend would increase grass cover in the  
28 southwest shrubsteppe, the response would vary by site  
29 characteristics and weather patterns. Sites with harsh growing  
30 conditions would not improve much in 20 to 30 years. Undesirable  
31 shrubs would continue to dominate many sites unless these shrubs  
32 are chemically or mechanically controlled. Current Management  
33 appears to have favored the grass component of the community. The  
34 shrub component in some cases might increase over the next 20  
35 years. Under moderate grazing, however, shrubs appear to increase  
36 independently of grazing management (Holechek and others 1989).

#### 37 Chaparral-Mountain Shrub

38 Removing livestock or changing grazing practices in  
39 nonfunctioning mountain shrub communities would increase the  
40 vigor of the community. Density of herbaceous perennials would  
41 slowly increase. In the short term the Proposed Action would  
42 increase the following: palatable grasses and forbs, height and  
43 density of existing grass stands, residual vegetation material  
44 carried over the winter, and litter and fine organic material at  
45 the soil surface. Over the long term, seedlings and young  
46 palatable shrub plants would increase.

1      Insert Figure 4-8.

1  
3 **Pinyon-Juniper**

4 Removing livestock from nonfunctioning areas and changing grazing  
5 practices on areas functioning but susceptible to degradation in  
6 pinyon-juniper ecosystems would allow the grass and shrub  
7 component of the ecosystem to increase in vigor. Livestock  
8 removal would also reduce the soil disturbance of cryptobiotic  
9 crusts. The effect on the pinyon-juniper community, however,  
would be slight, especially where crown density is high.

10 **Mountain and Plateau Grasslands**

11 In the short term, the Proposed Action would result in the  
12 following vegetation increases in the mountain and plateau  
13 grasslands: palatable grasses and forbs, height and density of  
14 existing grass stands, residual vegetation material carried over  
15 the winter, and litter and fine organic material at the soil  
16 surface. These changes would be faster and greater on areas  
17 found to be nonfunctioning or not meeting forest plan objectives.  
18 In addition, native bunchgrasses would increase, and undesirable  
19 shrubs, forbs, and grasses would decrease. These changes would  
20 occur relatively rapidly because this vegetation type occurs in  
21 areas with more than 12 inches of annual precipitation.

22 **Plains Grasslands**

23 Implementing national requirements and regional standards and  
24 guidelines or fallback standards and guidelines under the  
25 Proposed Action would result in an upward trend in ecological  
26 status in the plains grasslands. Wheatgrasses and needlegrasses  
27 would increase in composition relative to blue grama, Sandberg  
28 bluegrass, prairie junegrass, and sedges. Where clubmoss or blue  
29 grama prevail, little change would likely occur without site  
30 disturbance. Sites near the upper end of the seral stage would  
31 be most likely to succeed to the next seral stage.

32 Nonriparian drainageways or wooded draws are key areas that are  
33 heavily grazed under season-long use. Although livestock would  
34 continue to heavily use these draws, reducing livestock grazing  
35 conflicts in these bottoms would benefit these areas more than  
36 the higher adjacent areas that have traditionally been more  
37 lightly grazed. Management to improve the functioning condition  
38 of wooded draws would result in an upward trend.

39 **Annual Grasslands**

40 Intermittent or rotational grazing used in implementing standards  
41 and guidelines would favor grasses and reduce the invasion of  
42 undesirable species in annual grasslands. Annually adjusting the  
43 number of livestock on the range would allow the vigor of native  
44 species to improve during periodic climate variations. In the

1 short term, the Proposed Action would result in the following  
2 increases: palatable species of annual grasses and forbs,  
3 residual vegetation material carried over the winter, and litter  
4 and fine organic material at the soil surface.

#### 5 Alpine Grasslands

6 Implementing national requirements and regional standards and  
7 guidelines or fallback standards and guidelines would increase  
8 vegetation vigor in nonfunctioning areas of alpine grasslands and  
9 also improve vegetation trend. Nonfunctioning areas would slowly  
10 recover under cold temperatures and short growing seasons.

#### 11 Coniferous and Deciduous Forests

12 Under the Proposed Action, native plants in the coniferous and  
13 deciduous forest types would increase. As multi-interest  
14 involvement increases, improved grazing management would be  
15 combined with improved fire management, leading to an eventual  
16 increase in young-age classes in deciduous stands.

17 Palatable plants would increase in abundance, density, and vigor,  
18 especially understory forbs, grasses such as fescues and  
19 bluegrasses, and shrubs such as bitterbrush and currants.  
20 Changes would be most evident in open stands of pine and less  
21 noticeable in fir and redwood types. Overall changes would  
22 strongly depend on fire and timber management. In many conifer  
23 stands the intensity of grazing affects little understory  
24 vegetation.

#### 25 RIPARIAN/WETLAND/AQUATIC

26 In the long term, implementing national requirements and regional  
27 standards and guidelines or fallback standards and guidelines  
28 under the Proposed Action would lead to improvements in riparian  
29 conditions that support special status species, maintain water  
30 quality, contribute to watershed function, and improve an area's  
31 ecological conditions. The height, width, and amount of  
32 vegetation would become more diverse. Canopy would become more  
33 closed. Streambanks would become more stable. And native  
34 riparian vegetation communities would become reestablished.

35 Expanding opportunities for public participation would result in  
36 a diversity of interests being represented in resource  
37 management. Livestock production would remain a priority, but  
38 maintaining riparian and other ecological values would be  
39 recognized as a foundation of continuing long-term renewable  
40 resource management.

41 In the long term, 1,831,717 acres (about 84 percent) of Forest  
42 Service riparian areas would either be meeting objectives or  
43 moving towards objectives (an increase of 7 percent from 1993).



Another 359,541 acres (16 percent) would not be meeting objectives (a decrease of 26 percent from 1993).

In the long term under the Proposed Action, 447,100 acres (about 43 percent) of BLM riparian areas would be properly functioning (an increase of 27 percent from 1993). Another 417,300 acres (41 percent) would become functioning but susceptible to degradation (a decrease of 11 percent from 1993). And 164,000 acres (16 percent) would be nonfunctioning (a decrease of 20 percent from 1993).

Figure 4-9 shows how the Proposed Action would change the functioning condition of BLM-administered riparian areas. Figure 4-10 shows how well the Proposed Action would allow forest plan objectives to be met on Forest Service-administered riparian areas. Improved management would result in an overall positive trend and steady improvement in the functioning condition of roughly 20 percent of riparian areas. Improvements would result from implementing national requirements and regional standards and guidelines or fallback standards and guidelines and ecosystem management, modifying livestock management practices, and allowing more public involvement in rangeland management.

Improvements would not be dramatic in the short term, but the Proposed Action would result in significant long-term improvements and benefits to many other resources associated with high-quality riparian areas. Grazing changes would result in large-scale, long-term improvement in riparian resources and aquatic habitat.

Residual standing plant material in mountain meadows would rapidly increase, especially near perennial streams, seeps, and where the water table is within 3 feet of the soil surface. Increased plant material would mainly consist of grasses and sedges with some forbs. Fine organic litter on the soil between standing vegetation would also increase as would willow seedling establishment within the short term of implementation. In the long term, the density of willows would substantially increase, as would the vertical and horizontal closure of willow crowns, especially within about 4 feet of the ground.

#### WATERSHED

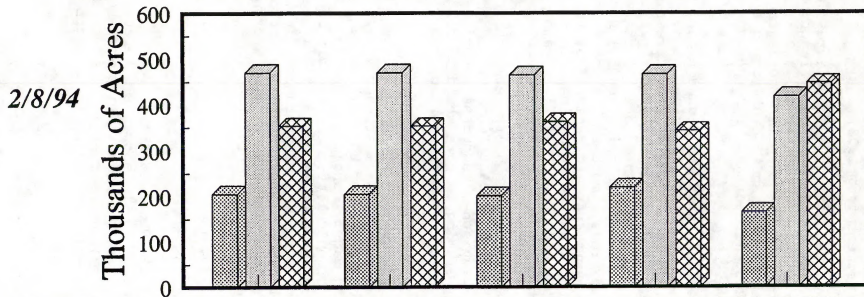
##### UPLANDS

Figures 4-7 and 4-8 show that the Proposed Action would little change upland watershed condition in the short term because of the time needed to fully implement this alternative and the naturally slow rate of upland vegetation change. As under Current Management, climatic variation would be the dominant short-term factor in effecting change.

Figure 4-9

# Changes in Functioning Condition - BLM Riparian

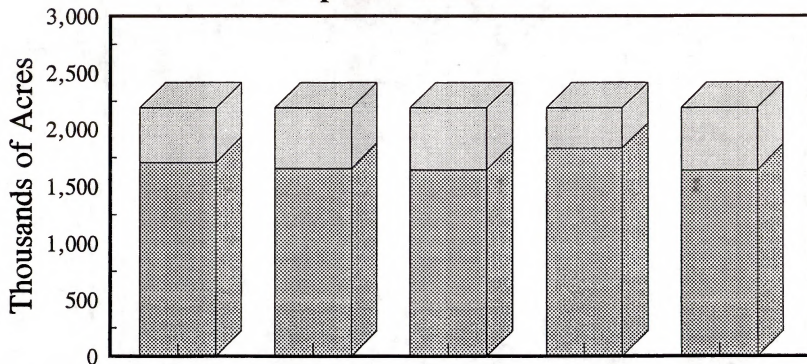
## Proposed Action



	1993 Estimated	CM Short Term	PA Short Term	CM Long Term	PA Long Term
Nonfunctioning	205.0	205.0	201.0	219.1	164.0
Functioning At Risk	470.3	470.3	464.9	466.8	417.3
Proper Functioning	353.1	353.1	362.5	342.5	447.1
Total Acres	1,028.4	1,028.4	1,028.4	1,028.4	1,028.4

Figure 4-10

## Change in Status - Riparian Forest Service Proposed Action



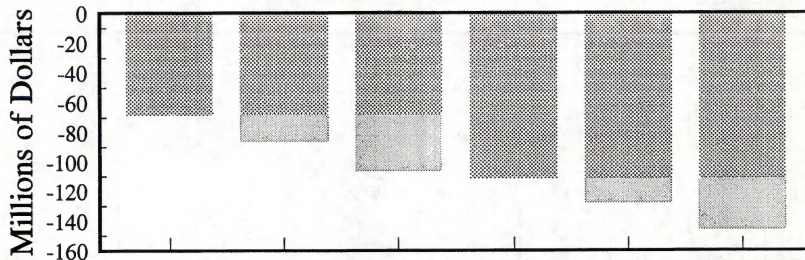
	1993 Estimated	PA Short Term	CM Short Term	PA Long Term	CM Long Term
Meeting Objectives	1,707.0	1,655.2	1,643.3	1,831.7	1,639.5
Not Meeting	484.3	536.1	548.0	359.6	551.8
	2,191.3	2,191.3	2,191.3	2,191.3	2,191.3

Figure 4-10a

# Reductions in Income

## Livestock Industry

### Proposed Action



Alternative	Short Term PRIA	Short Term Proposal	Short Term Regional	Long Term PRIA	Long Term Proposal	Long Term Regional
Management Actions	-68	-68	-68	-111	-111	-111
Fee	0	-18	-38	0	-16	-34
Total	-68	-86	-106	-111	-128	-146

BLM and Forest Service Permittees Only



Fully implemented in the long term, the Proposed Action would significantly improve upland watershed conditions. Reductions in forage consumed by livestock and changes in management would increase vegetation and litter cover and improve the physical properties of the soil, resulting in less runoff and erosion. Upland gullies would improve over the long term as they slowly revegetate and in some cases silt in and return to swalelike conditions.

Improved upland watershed condition would result from implementing national requirements and regional standards and guidelines or fallback standards and guidelines on BLM-administered lands and requiring that standards and guidelines in Forest Service land use plans be incorporated into grazing permit conditions. Changes in regulations would allow Range Betterment Funds to be used for repairing existing watershed projects that have exceeded their useful life expectancy and are either in danger of failing or have failed. Other provisions of the Proposed Action that would improve upland watershed condition are allowing extended periods of nonuse to meet resource objectives, altering the decision appeals process, and changing the structure of grazing advisory boards.

The vegetation communities that would best respond to the Proposed Action are the coniferous-deciduous forests, chaparral-mountain shrub, mountain and plateau grasslands, plains grasslands, and sagebrush communities where annual precipitation exceeds 12 inches.

The desert shrub, pinyon-juniper, and sagebrush communities with less than 10 inches of annual precipitation would respond much slower to management actions implemented under rangeland reform.

#### **RIPARIAN/WETLAND/AQUATIC**

Under the Proposed Action, the overall hydrologic function of riparian-stream systems would improve. Riparian-stream systems in nonfunctioning or functioning but susceptible to degradation conditions would improve towards a functioning condition over the long term. (See Figures 4-9 and 4-10.) Unstable stream channels in low sediment yield or highly fluctuating flow environments would move more slowly toward a functioning condition.

Improved riparian-stream systems would mostly result from BLM's implementing national requirements and regional standards and guidelines or fallback standards and guidelines and Forest Service standards and guidelines becoming grazing permit conditions. Other provisions of the Proposed Action that would help improve riparian conditions include allowing extended nonuse, ending the automatic staying of appealed decisions, replacing grazing advisory boards with multiple resource advisory



1 councils, and targeting Range Betterment Funds toward areas in  
2 nonfunctioning condition. The reduction in livestock grazing  
3 that would result from implementing the above provisions and  
4 setting land management objectives to achieve desired vegetation  
5 communities would improve watershed conditions (vegetation and  
6 ground cover). Riparian-stream systems would become more stable  
7 from the reduced accelerated runoff and sediment yields resulting  
8 from upland stability.

9 Riparian-stream systems would also benefit from reduced livestock  
10 use. Sediment yields would decline with the decline in the  
11 trampling of streambanks and riparian areas. Reducing the  
12 physical effects of grazing would also restore stability to  
13 presently unstable channels. These improvements would partly  
14 result from improved conditions of riparian tree and shrub  
15 communities. Hydrologic functions (overbank flooding, water  
16 quality maintenance, flood peak reduction, groundwater recharge,  
17 maintenance of low flow) would progressively be restored to  
18 nonfunctioning areas.

19 Changes in the BLM's water regulations and policy under the  
20 Proposed Action would make BLM and Forest Service regulations and  
21 policies more consistent. Since the change is prospective, the  
22 proposed action would not affect permittees' rights or interest  
23 in water under state law. In situations where a permittee has  
24 and continues to meet the requirements for water base property  
25 their status would be unaffected.

26 Overall, nonpoint-source pollution from livestock grazing would  
27 decrease from both upland and riparian sources, mostly as a  
28 result BLM's implementing national requirements and regional  
29 standards and guidelines or fallback standards and guidelines and  
30 the Forest Service's incorporating local standard and guidelines  
31 into grazing permit conditions. Other provisions of the Proposed  
32 Action that would help reduce nonpoint-source pollution include  
33 allowing extended nonuse, ending the automatic staying of  
34 appealed decisions, replacing grazing advisory boards with  
35 multiple resource advisory councils, and targeting Range  
36 Betterment Funds toward areas in nonfunctioning condition.

37 Over the long term, reduced grazing resulting from the above  
38 actions and the implementing of land management objectives based  
39 on achieving a desired vegetation community would reduce sediment  
40 and salinity yields from both uplands and riparian areas. Other  
41 pollutants such as fecal coliform and nutrient enrichment would  
42 also be reduced.

43 Nonpoint-source salinity in the Colorado River basin, being  
44 predominantly associated with runoff and sediment yields from  
45 arid-desert shrub communities, would also decline but at a slower  
46 rate because this vegetation type responds slowly to management.  
47 Over the short term, implementing the standards and guidelines of

the Proposed Action would improve water quality in local riparian and aquatic ecosystems where livestock grazing is the main economic use. Implementing full force and effect decisions would help prevent the further degrading of upland watersheds and riparian-aquatic habitats threatened by livestock grazing. Range Betterment Funds would be used to help rehabilitate threatened or nonfunctioning water-based ecosystems.

Over the long term, implementing the standards and guidelines would maintain water quality and the properly functioning condition of upland watersheds, whose main economic use is livestock grazing. Federal land managers would make better grazing decisions by using multiple resource advisory councils and implementing decisions based on ecosystem management principles.

Within local ecosystems shared by livestock grazing and other economic uses, the Proposed Action would not affect the environment in the short or long term unless the other economic uses are involved throughout the decisionmaking process.

#### **WILDLIFE**

The following provisions of the Proposed Action would all help improve wildlife habitat:

- ♦ Implementing national requirements and regional standards and guidelines or fallback standards and guidelines.
- ♦ Modifying grazing program policies and regulations.
- ♦ Changing the decision appeals process.
- ♦ Allowing nonuse to extend beyond 1 year for resource protection.
- ♦ Increasing the amount and expanding the uses of Range Betterment Funds.
- ♦ Establishing multiple resource advisory councils.
- ♦ Increasing management emphasis on ecosystem sustainability.

♦  
Expanding regulatory  
authority for prohibited acts

Administrative and managerial changes geared toward better control of livestock distribution and ecosystem sustainability would moderately improve riparian resource condition overall in the long term. But some nonfunctioning riparian areas are degraded to the point that they would no longer recover without physical treatment.

Implementing national requirements and regional standards and guidelines or fallback standards and guidelines under the Proposed Action would benefit ecological conditions in the short and long term. Emphasizing the principles of ecosystem management and improving biological diversity, these standards and guidelines would encourage BLM to rapidly recognize and resolve threatening conditions, benefiting wildlife indirectly through increased diversity in vegetation and improved habitat condition. Eventually regional standards and guidelines would further ensure that site-specific needs are met in achieving upward trends in condition. By using livestock grazing as a management tool to maintain sustainable ecosystems, biological diversity, and vegetation productivity of proper functioning upland and riparian communities, the Proposed Action would indirectly improve wildlife resources. Any improvement of vegetation communities, particularly riparian communities, that increases structural and species diversity would indirectly benefit fish and wildlife.

The Proposed Action would expand prohibited acts to other federal and state laws, including violating water quality standards for protecting anadromous fish. Anadromous fish are now considered a "beneficial use" under state laws for water quality standards in the Northwest, and more states now have laws covering nonpoint sources of pollution. Over the long term, this change could significantly benefit aquatic habitat where, in the past, conditions of grazing permits did not include compliance with water quality laws.

Changing regulations on the approval of nonuse would improve riparian and upland vegetation, which would improve wildlife habitat in the short and long term.

BLM ownership of future range improvements would allow projects to be more easily built and modified for wildlife use.

The Proposed Action would change Forest Service and BLM regulations and policies to expand and clarify the use of Range Betterment Funds for improving rangeland ecosystems instead of for just promoting livestock interests. Funds would be used for project planning, environmental analysis, and for BLM, monitoring the effectiveness of improvements. Using Range Betterment Funds

1 to meet ecosystem management objectives would help improve  
2 riparian resource conditions and reverse downward trends in  
3 overall condition.

4 Waterfowl, upland game, raptors, big game, nongame species, and  
5 especially fisheries would benefit from using these funds. An  
6 example would be using funds to exclude livestock from riparian  
7 areas to allow willows or cottonwoods to regrow to improve  
8 vegetation diversity and structure. These changes would allow a  
9 more efficient and diversified use of funding than at present.

10 Expanding opportunities for the public to participate would  
11 increase overall support for achieving ecologically sound  
12 resource objectives and would result in implementing decisions  
13 benefitting multiple uses. Wildlife would benefit from  
14 healthier, more diverse ecosystems.

15 Timely implementing of decisions for correcting environmental  
16 problems would reduce resource damage, benefitting riparian areas  
17 in the short term. These short-term benefits would allow  
18 conditions to improve sooner than they otherwise would. For  
19 example, implementing a decision before its appeal is resolved  
20 could moderately improve waterfowl habitat condition in the short  
21 term by increasing herbaceous forage and cover.

22 The multiple resource advisory councils would offer a balanced  
23 forum for generating multiple resource recommendations for BLM  
24 land managers. Such a forum would increase overall support for  
25 achieving ecologically sound resource objectives. The councils  
26 would also allow multiple use decisions to be implemented faster  
27 than they otherwise would. With more emphasis on ecosystems and  
28 ecosystem processes, vegetation communities would improve in  
29 structure, diversity, and function. Such improvements in  
30 riparian and upland areas would benefit habitats by providing  
31 more diverse, healthy ecosystems in which wildlife could more  
32 easily meet life requirements.

33 By managing rangeland to restore and maintain natural ecosystems,  
34 the Proposed Action would benefit wildlife in the long term by  
35 increasing or improving the amount and quality of habitat. With  
36 restored naturally functioning ecosystems comes an increase in  
37 biological diversity. Greater biological diversity would allow  
38 more opportunities for most species to meet basic life  
39 requirements. The Proposed Action would decrease the loss of  
40 plant species composition, encroachment of unpalatable plants,  
41 loss of plant vigor and soil structure, damage to residual plant  
42 cover from hoof action and trampling, and depletion of surface  
43 water through defoliation of watersheds. All of these changes  
44 would benefit most wildlife species. The biodiversity of  
45 associated riparian and aquatic communities would steadily  
46 increase over the long term.



Species that benefit from degraded range conditions (redsided shiner, grasshopper, cowbird, black-tailed jackrabbit) would be harmed by conditions benefiting more desirable species (Lahontan cutthroat trout, southwestern willow flycatcher, cottontail rabbit).

Under the Proposed Action, range improvements, including water development for livestock grazing on public lands, would continue to be used, built, and maintained. As ecosystem management is implemented, a broader view of range improvement impacts would be assessed on an ecosystemwide basis to reduce or mitigate subtle changes in overall ecosystem function.

The only significant exception to this general overview of riparian resources across the West could occur in the Coastal and Columbia Basin analysis areas where the possible implementation of some provisions of PACFISH (which is presently under development) might significantly change recreational use, grazing practices, and timber harvesting to comply with the Endangered Species Act. If some of these provisions are adopted and implemented, riparian habitat improvement rates within PACFISH areas could far exceed those in other areas where PACFISH recommendations would not be applied.

#### **BIG GAME**

Upland vegetation types removed from grazing in nonfunctioning uplands would move more rapidly toward the potential natural community. General vegetation changes would favor species associated with upper seral stages. For example, in areas occupied by elk and mule deer, elk would be favored where vegetation moves toward a higher percent composition of grasses. Big game populations would then move toward stability in the long term but occupy different proportions of habitats than they do now. Species favored by these vegetation trends would include bighorn sheep and elk. Pronghorn antelope and mule deer habitat conditions would generally decline due to a shift from brushy to herbaceous vegetation. Habitat diversity would be maintained on a local basis through land treatment projects and natural events such as wildfire, drought, and disease.

Riparian conditions would improve overall, moving moderately toward proper functioning condition. (See Figures 4-9 and 4-10.) Increases in woody vegetation in most riparian community types would improve the quality of big game habitat by increasing the structural diversity of these areas and providing higher quality hiding and thermal cover. The movement of riparian vegetation types toward the potential natural community would also increase forage and improve forage quality for big game. Succulent forage in meadows (wetlands) would grow later into the dry season, providing better quality forage for a longer time.



## 1 UPLAND GAME AND NONGAME

2 In the long term the Proposed Action would benefit upland and  
3 nongame in riparian areas by increasing the diversity of  
4 vegetation structure and species, the availability of surface  
5 water, and availability and duration of succulent vegetation. In  
6 some cases, improvements in riparian and upland vegetation  
7 structural components would slow or halt declines in local upland  
8 and nongame populations. The long-term response of these  
9 species, however, would be moderated by habitat loss or  
10 fragmentation by means other than grazing.

11 The long-term effects of the Proposed Action would be more  
12 significant in areas with larger blocks of public lands, low  
13 human population densities, and high proportions of grazing.  
14 Upland increases in vegetation species composition and structural  
15 diversity could significantly increase upland and nongame  
16 populations, especially in areas of higher precipitation where  
17 the progression toward potential natural communities would be  
18 more rapid. (See Figures 4-7 and 4-8.) But the response of these  
19 populations could be moderated by other factors, such as fire or  
20 its absence, encroachment of exotic plants, intensive recreation  
21 use, or conversion of nearby private lands to farming.

## 22 WATERFOWL

23 Improvements in riparian and aquatic functioning condition would  
24 correlate directly to modest long-term improvement of waterfowl  
25 habitat. The removal of sediment from water would encourage  
26 aquatic macroinvertebrate production and plant growth, meaning  
27 more food for waterfowl. Proper livestock management and less  
28 grazing pressure on riparian-wetlands would improve waterfowl  
29 nesting and cover habitat.

30 Implementing national requirements and regional standards and  
31 guidelines or fallback standards and guidelines would benefit  
32 ecological conditions in the short and long term. Emphasizing  
33 the principles of ecosystem management and biological diversity,  
34 these standards and guidelines would allow threatening conditions  
35 to be rapidly recognized and resolved, immediately improving  
36 waterfowl habitat. Improved ecological condition of waterfowl  
37 habitat would include reductions in sedimentation from waterways,  
38 which would encourage aquatic plant growth and more food for  
39 waterfowl.

40 Proper livestock management and less grazing pressure on wet  
41 meadows would improve waterfowl nesting and cover habitat.  
42 Increased plant species composition, plant vigor, residual plant  
43 cover, and properly functioning watersheds would improve habitat  
44 for nesting, brood rearing, and migration.

## 45 RAPTORS

1 Improvements in upland and riparian vegetation communities and  
2 the overall broader focus on managing rangeland resources for  
3 improved ecological health and conditions would mean improved  
4 nesting habitat and increased prey populations for raptors in  
5 general. Long-term riparian habitat changes would see the  
6 expanding or re-establishing of large woody species, such as  
7 cottonwood and aspen. These conditions would result in better  
8 nesting, hunting, and hiding conditions for riparian-dependent  
9 raptors.

#### 10 **RESIDENT AND ANADROMOUS FISH**

11 As livestock are removed or their season of grazing use is  
12 changed, riparian vegetation would quickly improve in the short  
13 term, leading to the steady long-term improvement of riparian  
14 condition and fishery habitats. This improvement would result  
15 from increased overhanging banks and stream cover, lowered water  
16 temperatures, increased instream structural diversity, improved  
17 water quality, increased macroinvertebrate production, and  
18 moderated streamflows.

#### 19 **SPECIAL STATUS SPECIES**

20 The Proposed Action would result in vegetation characteristics  
21 that trend toward potential natural communities, which are  
22 favored by most special status species. Special status species  
23 trends would mirror the change rates predicted for upland  
24 vegetation under the Proposed Action. (See Figures 4-7 and 4-8.)  
25 The following are some examples of changes under the Proposed  
26 Action that might affect special status species.

27 ♦ The western sage grouse in  
28 the sagebrush vegetation type  
29 would increase with expected  
30 patchy increases in  
31 herbaceous perennials and a  
32 more diverse plant community  
33 leading to greater resilience  
34 to natural disturbances.

35 ♦ The ferruginous hawk is  
36 another species that would  
37 not benefit from extensive  
38 increases in herbaceous cover  
39 in the sagebrush or plains  
40 grasslands vegetation types.  
41 More cover would somewhat  
42 conceal this hawk's prey,  
43 which often consists of  
44 ground squirrels or rabbits.  
45 Grazing management that  
46 maintains or creates

patchiness would benefit this bird.

The historical relationship of bison, prairie dogs, and black-footed ferrets could be enhanced where cattle take the place of missing bison. Heavily grazing in patches, bison produced open areas suitable for prairie dogs. Networks of large, dense prairie dog colonies, are most suitable for black-footed ferrets.

As state water quality standards are met, most aquatic special status species would recover. Change rates would follow those predicted for the associated riparian-wetland communities over the long term.

For example, increased microhabitat diversity would result in increasing populations of Lahontan cutthroat trout (and other cutthroat trout subspecies), woundfin, Gila trout, Colorado roundtail chub, Gila topminnow, Pecos gambusia, Hygrotus narrow-footed diving beetles, and others. Several species such as Colorado squawfish, razorback sucker, and bonytail chub would experience little effect because factors other than changes in vegetation would mask or overwhelm their response to grazing management.

Increased upland cover and riparian vegetation would lead to less siltation of ponds and other impoundments. As a result, each water would have a longer effective life, extending productivity over time for prey items used by special status species. At springs and seeps, special status species like many spring snails would increase in numbers following associated riparian growth, decreased siltation, and bankside stabilization.

The following provisions of the Proposed Action would affect special status species just they would for general wildlife:

- prohibited acts
- range improvement ownership
- Range Betterment Fund use
- full force and effect
- grazing advisory boards
- rangeland ecosystems

More nonuse would result in short to mid term, slight increases in forage and cover access on limited areas, promoting habitat characteristics required by some upland, riparian, and aquatic

species. For example, the Arizona hedgehog cactus, in the chaparral-mountain shrub vegetation type, Sacramento prickly poppy, and Kuenzler hedgehog cactus, in the pinyon-juniper type, could experience a short-term decrease in damage due to inadvertent trampling and a slight increase in recruitment during nonuse periods. Additionally, nonuse in times of drought could benefit the desert tortoise through increased access to severely limited forage.

BLM state directors would have the flexibility to distribute the Secretary of the Interior's half of Range Betterment Funds within their states. Such flexibility would allow for sending funds to places most in need of improvement. Habitat characteristics in uplands and riparian/wetlands would improve in the long term where conflicts require on-the-ground treatments to alleviate special status species impacts or promote restoration and recovery. For example, fencing to protect plants or establish riparian pastures would enable management to meet standards and guidelines in riparian areas, improving habitat characteristics needed by spikeweed, loach minnows, bald eagles, northern beardless tyrannulets, and southwestern willow flycatchers.

Synergistic effects of implementing the standards and guidelines and regulation changes would lead to a moderate long-term trend toward restoring some sensitive species and indirectly toward recovery of several listed species. Vegetation changes would result in more cover and forage. Special status plants would be less likely to be damaged by trampling, and their regeneration would likely increase. The trend would mirror predicted vegetation changes with an additive increase in cover and forage availability or access. The availability and access changes are related to the lower use of herbaceous plants. Livestock would continue to trail and compact soil in an irregular zone around present and future rangeland developments such as waters and handling facilities with rills and gullies present in some situations, except in riparian/wetland areas.

#### WILD HORSES AND BURROS

Under the Proposed Action, improved upland and riparian vegetation would result in improved habitat conditions for wild horses and burros where livestock competition has been reduced.

The Proposed Action related to water rights would, by confirming federal ownership of grazing-related water rights (when permitted by state law), ensure access to water sources for a variety of multiple uses, including wild horses and burros. Wild horses and burros would disperse over the entire herd area, reducing concentrations of grazing animals in many areas, especially in riparian zones. The overall vegetation condition of the herd area would improve over the long term. With better dispersement of horses, bands would interact normally with each other. The



condition and health of wild horses could improve resulting in less stress, injury, and death.

By holding title to future permanent range improvements, BLM could enhance management of a broader diversity of values on the public rangelands, including wild horses and burros. BLM would also consider the free-roaming nature of wild horses when locating and building livestock fences and wild horse needs when developing water sources and land treatments. Under the Proposed Action wild horses would continue to use normal grazing use areas, and water sources and would be less likely to be shut away from traditional use areas.

Replacing grazing advisory boards, multiple resource advisory councils with a balanced view of local, regional, and national issues and would increase the consideration of wild horse needs in local resource management. These councils would strongly influence the type, location, and design of range improvement projects, which would benefit wild horses and burros as discussed above.

#### RECREATION

Increased management of livestock grazing under the Proposed Action would improve overall recreation experiences at developed and undeveloped recreation sites. The quality of recreational user experiences would improve at fenced developed sites because of improved vegetation condition, which would decrease fenceline contrasts. User experiences at unfenced developed sites, especially in riparian areas, would improve slightly in the short term and moderately in the long term. As vegetation reestablishes where it is now degraded, water quality would improve, improving fishing, boating, swimming, and wildlife viewing. Many objectionable conditions, such as the presence of livestock, fecal matter, unpleasant odors, increased insects, and streambank erosion, would be eliminated over the long term. In the drier upland areas, vegetation condition and overall naturalness would improve slightly in the long term. Undeveloped recreation sites would improve for the same reasons as developed sites.

Scenic quality would slightly improve in areas now heavily used by livestock, such as around water developments, in riparian areas, and near salting areas and sheep bedding grounds. In the long term, riparian areas would moderately improve as adjustments in livestock numbers, season of use, and grazing systems allow the recovery of natural vegetation. Upland scenic quality would improve only slightly in the long term.

Commercial permit holders, such as outfitters and guides, would benefit from improvements in vegetation condition, water quality, and wildlife habitat, especially in riparian areas. This



1 improvement would make commercial services more marketable.  
2 Existing and new range improvement projects, especially fences,  
3 would continue to constrain motorized and nonmotorized events.

#### 4 WILDERNESS

5 Under the Proposed Action, the increased management of livestock  
6 in wilderness and wilderness study areas (WSAs) recommended for  
7 designation would result in long-term improved vegetation  
8 condition and water quality (especially in riparian areas) and  
9 less degrading of naturalness. Erosion damage would also  
10 decline. Better vegetation conditions would allow fewer  
11 opportunities for undesirable plants to become established. On  
12 the other hand, livestock and range improvement projects would  
13 continue to lessen opportunities for solitude and primitive and  
14 unconfined recreation.

#### 15 CULTURAL AND PALEONTOLOGICAL RESOURCES

16 National requirements and regional standards and guidelines or  
17 fallback standards and guidelines under the Proposed Action would  
18 recognize the importance of cultural resources and allow cultural  
19 resource management decisions to be more consistently  
20 implemented. These decisions would be used to develop permit  
21 conditions. The Forest Service would also require that forest  
22 plan standards and guidelines for grazing be made part of the  
23 conditions of the grazing permit and that annual grazing use and  
24 permit renewal depend on the permittee's adherence to these  
25 conditions. The requirement that new livestock management and  
26 holding facilities be located outside riparian-wetland areas  
27 would generally benefit cultural resources since these areas have  
28 a higher density of cultural resources.

29 The Proposed Action would revise BLM livestock grazing  
30 regulations to allow grazing permits to be canceled for  
31 violations of the Archaeological Resources Protection Act of 1979  
32 (16 U.S.C. 470aa et seq.) and the Native American Graves  
33 Protection and Repatriation Act (25 U.S.C. 3001).

34 The Proposed Action would also eliminate BLM district grazing  
35 advisory boards and advisory councils and replace them with  
36 multiple resource advisory councils. In addition to commodity  
37 interests, the boards would represent a variety of interests,  
38 including environmental groups (historic preservationists) and  
39 tribal councils.

40 The Proposed Action would destroy fewer cultural resources than  
41 would Current Management because the Section 106 process would be  
42 supplemented by cultural resource management within the rangeland  
43 management program.

#### 44 ECONOMIC CONDITIONS

Cumulative impacts under the Proposed Action would be similar to those under Current Management in the long term. In the short term, however, greater forage reductions under the Proposed Action would have a slightly greater cumulative impact than under Current Management.

The impacts under the Proposed Action would result from a wide variety of trends now affecting agriculture in general and livestock production in particular. (These trends are discussed in Chapter 3.) In addition, in the future a variety of emerging issues might accelerate or offset ongoing trends in agriculture.

Population growth in the West and in many western rural communities will continue to transform rural economies. Population growth in many rural communities, while contributing to economic growth and diversification, will continue to diminish the relative importance of agriculture in those communities. But economic diversification also offers more opportunities to earn off-ranch income and thus to help families maintain their ranches. Communities that continue to lose population and whose economies are in decline may be further strained by decreases in livestock production.

Land use changes, such as increased recreation use and subdivision of privately owned ranch lands, are both a cause and a result of trends in agriculture. Economically marginal ranches may be encouraged to sell to developers in regions where demand for rural homesites is increasing, resulting in further decline in agricultural production. Increased outfitter and guide activities, which encourage more recreational use of rural areas and offer more income-earning potential to ranchers, may contribute to population growth and in turn accelerate changes in land use away from agricultural production.

Land use changes could affect community tax bases. The impact to a local economy of a change in livestock production depends on the relative size and growth trends in other sectors of that economy. Where a relatively significant livestock industry declines, tax revenues have a high probability of declining. On the other hand, where other sectors of the economy are stable or growing and a relatively small decline occurs within a large livestock industry (or a large decline occurs within a small livestock industry), major impacts to the tax base are unlikely.

Changes in land use may accelerate the decline in public access to public lands where access depends on crossing private lands. Reduced access may increase the demand for land adjustment (such as land exchanges or easement acquisition) by BLM and the Forest Service to obtain more access to public lands.

Policies aimed at recovery of endangered species, such as desert tortoises, anadromous fish, and grey wolves, would continue to

1 affect livestock production by restricting livestock grazing in  
2 endangered species habitat. On the other hand, future activities  
3 designed to avert habitat loss and endangered species listings  
4 may help sustain livestock production in the long term.  
5 Eliminating the Federal Government's wool subsidy program over  
6 the next 3 years could accelerate the decline in sheep production  
7 in the West and may cause marginal sheep producers to sell their  
8 operations. Other government policies, such as trade agreements  
9 aimed at reducing international trade barriers, will also  
10 continue to affect the industry. Agreements of this kind may  
11 both increase and decrease livestock production, but the  
12 direction and magnitude of these impacts is beyond the scope of  
13 this EIS. The expiration of Conservation Reserve Program (CRP)  
14 contracts beginning in 1996 might encourage the use of croplands  
15 for pasture, thereby increasing forage for livestock.

16 The most important direct and indirect economic effects that  
17 would result from implementing the Proposed Action are discussed  
18 in the following sections.

#### 19 REGIONAL ECONOMIC IMPACTS

20 Effects on employment and income would stem from two sources:  
21 reduced forage that would be used for livestock grazing and  
22 increased grazing fees for the remaining forage that livestock  
23 can graze. Appendix N, MicroIMPLAN System and Methodology for  
24 Estimating Impacts to Employment and Income, describes the  
25 methodology used to assess the economic impacts.

26 Under the Proposed Action, forage grazed by livestock on BLM- and  
27 Forest Service-administered lands is projected to decline by 12  
28 percent after 5 years and by 21 percent after 20 years. For  
29 Current Management, available forage will decline by 5 percent in  
30 5 years and 20 percent in 20 years (18 percent for BLM and 19  
31 percent for the Forest Service). These projections are based on  
32 trends over the past 10 years (reflected in Current Management),  
33 which are expected to continue, and management actions under the  
34 Proposed Action, which are expected to reduce forage grazed in  
35 the short term. In comparison to Current Management, the  
36 Proposed Action has 7 percent fewer AUMs available in the short  
37 term (5 years) and 1 percent fewer in the long term (20  
38 years). The Proposed Action would result in a greater short-term  
39 decline in forage consumed by livestock than would Current  
40 Management (12 percent versus 5 percent), but in the long term  
41 forage reductions under the two alternatives would be virtually  
42 the same.

43 Although in the short term employment and income would decline  
44 more under the Proposed Action than under Current Management,  
45 long-term declines under these two alternatives would be similar.  
46 Impacts would be minor in comparison to current conditions and  
47 trends in the westwide economy as a whole and in the agriculture

sector in particular. The impacts would occur in the context of an economy that has shown consistent growth over the past 10 years and is expected to continue growing. Thus, continued growth in employment and income in other sectors would tend to overshadow the relatively small employment and income reductions from implementing the Proposed Action.

After 5 years, employment is estimated to decline by a range of 1,680 to 2,710 job (about 0.1 percent of the total westwide agricultural employment under the current PRIA fee alternative 1 and 0.2 percent under the regional fees and competitive bidding fee alternatives 4 and 7, respectively). (See Table 4-4.) Under the BLM-Forest Service proposed fee formula (fee alternative 3), the decline is estimated to be between 2,053 jobs to 2,170 jobs, or 0.1 percent<sup>3</sup>.

After 20 years, employment is estimated to decline by a range of 2,760 jobs (PRIA fee) to 3,684 jobs (regional fees and competitive bidding). Under the BLM-Forest Service proposed fee formula, the decline is estimated to be between 3,093 and 3,295 jobs. The 20-year declines across all fee levels are estimated to be about 0.2 percent of total agricultural employment westwide.

Total income after 5 years is estimated to decline by a range of \$67.9 to \$106.1 million. (Under the current PRIA fee about 0.2 percent of total agricultural income westwide; under regional fees and competitive bidding about 0.3 percent.) Under the BLM-Forest Service proposed fee formula, the decline is estimated to be between \$81.7 million and \$85.9 million (about 0.3 percent) (See Figure 4-10a).

Total income after 20 years is estimated to decline by a range of \$111.5 to \$145.7 million. (Under the current PRIA fee about 0.3 percent; under regional fees and competitive bidding about 0.4 percent.) Under the BLM-Forest Service proposed fee formula, the decline is estimated to be between \$123.8 million and \$127.6 million (about 0.4 percent) (See Figure 4-10a). (Table 2 in Appendix P, Change in Employment and Income After 5 Years and 20 Years of Implementation Under Different Fee Levels, contains more-detailed information on employment and income impacts.)

On a local level impacts could be proportionately smaller or larger, but the location and intensity of impacts cannot be easily estimated. In the Desert Southwest and Rocky Mountains and High Plains analysis areas, BLM livestock forage would decline by a less-than-average 13 percent over the long term, as opposed to

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<sup>3</sup>The impacts for the BLM/Forest Service Proposed Fee are presented as a range between those caused by a \$4.28 fee and those caused by a \$3.72 fee. See Assumptions and Analysis Guidelines for more information.



1 21 percent westwide. The Coastal analysis area would have a  
2 greater-than-average decline in forage consumed by livestock, but  
3 the unit's small amount of livestock grazing on federal land  
4 would make employment and income impacts insignificant.

5 The impacts from reduced forage do not consider other factors  
6 that could mitigate overall impacts. For example, declines in  
7 employment and income from forage reductions do not consider  
8 periods for phasing in higher grazing fees (3 years or longer).  
9 Phasing in higher fees would reduce short-term impacts. Nor do  
10 these impacts account for the economy's ability to absorb gradual  
11 changes in forage available over time (i.e. 21 percent over 20  
12 years) as opposed to a sudden 21 percent decline in 1 year.

13 Improvements in resource conditions under the Proposed Action  
14 would create long-term benefits that would offset employment and  
15 income declines. Improved wildlife habitat and recreation sites  
16 would generate increases in employment and income as hunting,  
17 fishing, and wildlife viewing increase. These impacts would  
18 result both from changes in resource management and later  
19 improvement in range ecological health, and from increases in  
20 Range Betterment Funds from higher grazing fees.



1 Table 4-4: DECREASES IN EMPLOYMENT AND INCOME 5 AND 20 YEARS AFTER IMPLEMENTING PROPOSED ACTION

		FEE LEVEL:						
		PRIA (CURRENT)	MODIFIED PRIA	BLM-FS PROPOSED	REGIONAL	FFF	PRIA WITH SURCHARGE	COMPETITIVE BIDDING
2	DECREASED EMPLOYMENT							
3	AFTER 5 YEARS:	1682	2047	2167	2712	1777	2053	2712
4	AFTER 20 YEARS:	2706	3088	3195	3684	2845	3093	3684
5	DECREASED INCOME (1993 \$):							
6	AFTER 5 YEARS (\$000):	\$ 67906	\$ 81427	\$ 85870	\$106085	\$ 71422	\$ 81653	\$106085
7	AFTER 20 YEARS (\$000):	\$111472	\$124610	\$127599	\$145746	\$114628	\$123813	\$145746

## RANCH INCOME AND OPERATION IMPACTS

This section describes the impacts to ranch operations and income of changes in the amount of forage allocated to livestock grazing, increases in grazing fees, and regulation changes that might affect permittee operations. Impacts are shown for three hypothetical herd sizes: 425 cows, 210 cows, and 90 cows. Impacts are also considered for two levels of federal forage dependency for each of these three operations: 60 and 30 percent. Appendix N, Changes in Ranch Returns from Reduced AUMs and Higher Grazing Fees, describes the methodology used to assess the impacts to ranch operations.

Under the Proposed Action, forage consumed by livestock would decrease by 12 percent after 5 years and by 21 percent over 20 years. The Proposed Action would result in a greater short-term decline in forage than under Current Management (12 percent versus 5 percent). But the long-term forage decreases under these alternatives would be virtually the same. These figures are a westwide average, not necessarily representing forage reductions for all ranch operations. An estimated 12 percent decline in available forage westwide does not mean that each and every permittee will experience a 12 percent decline. Instead, estimated changes in forage availability would vary generally between regions and among permittees. Table 4-5 shows short- and long-term losses in net cash returns to the six hypothetical operations as a result of reduced forage for the current PRIA fee level (\$1.86), the BLM-Forest Service proposed formula (\$3.96)<sup>4</sup>, and the weighted average regional fee level (\$6.38).

In this analysis the impact would be greatest for a herd size of 425 cows and a 60 percent dependency on federal forage. In the short term, a 12 percent reduction in forage at the current fee level (\$1.86/animal unit month [AUM]) would decrease net cash returns (cash receipts minus cash expenses) by \$2,700. At \$4.283.96/AUM, net cash returns would decline to \$9,300 in the short term. And at \$6.38/AUM, net cash returns would decline by \$14,900 in the short term.

In the long term, a 21 percent forage reduction at the current fee level would decrease net cash returns by about \$4,800. At \$3.96/AUM, net cash returns would decline by \$10,600 in the long term. And, at \$6.38/AUM, net cash returns are estimated to decline by \$15,700 in the long term.

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<sup>4</sup>The analysis for the BLM/Forest Service Proposal is actually based on a \$4.28 fee. \$4.28 is the value that would be produced with a FVI of 1.08. See Assumptions and Analysis Guidelines for more information.

1 The operation with a herd size of 425 and 60 percent dependency  
2 on federal forage consumes 3,060 AUMs of federal forage ( $425 * 12$   
3 months \* 0.6). After 5 years, the operation would be allowed  
4 2,900 AUMs, and after 20 years it would be allowed 2,450 AUMs.  
5 Although income impacts might be significant for this and other  
6 operations using a large amount of federal forage, only 8 percent  
7 of BLM permits and 4 percent of Forest Service permits allow the  
8 grazing of more than 2,000 AUMs; 75 percent of BLM permits and  
9 more than 50 percent of Forest Service permits allow 500 or fewer  
10 AUMs.

Table 4-5: IMPACTS TO RANCH OPERATIONS UNDER THE PROPOSED ACTION

Alternative 2: Proposed Action	Ranch Attributes			Herd Impacts	Net Cash Returns Lost		
	Herd Size	percent Dependency on Federal Forage	percent AUM Reduction	# of Cows Lost Per Permitted Herd	Due to Smaller Herd Size <sup>1</sup>	At \$3.96/AUM <sup>2</sup>	At \$6.38/AUM <sup>3</sup>
Year 20	425	60.0	12.0	31.8	\$2,735	\$9,252	\$14,906
	425	30.0	12.0	15.9	1,367	4,625	7,453
	210	60.0	12.0	15.7	1,350	4,570	7,364
	210	30.0	12.0	7.9	679	2,289	3,686
	90	60.0	12.0	2.4	206	1,586	2,783
	90	30.0	12.0	1.2	103	793	1,392
Year 20	425	60.0	21.0	55.7	4,790	10,640	15,717
	425	30.0	21.0	27.8	2,391	5,316	7,854
	210	60.0	21.0	27.5	2,365	5,256	7,764
	210	30.0	21.0	13.8	1,187	2,632	3,887
	90	60.0	21.0	4.2	361	1,600	2,675
	90	30.0	21.0	2.1	181	800	1,338
<sup>1</sup> Net cash returns lost at current fee level. <sup>2</sup> Net cash returns lost due to herd size reductions plus increased fee (to \$4.28/AUM) on remaining federal forage. This analysis for the BLM/Forest Service Proposal of \$3.96 is based on a \$4.28 fee. \$4.28 is the value that would be produced with a FVI of 1.08 instead of an FVI of 1 as proposed. See <u>Assumptions and Analysis Guidelines</u> for more information. Therefore, the impacts presented here are overstated by 5 to 10 percent. <sup>3</sup> Net cash returns lost due to herd size reductions plus increased fee (to \$6.38/AUM) on remaining federal forage. \$6.38/AUM is the average value of the regional fees (weighted by the number of AUMs in each state charged at each fee level).							

1 The 90-cow operation with a 60 percent federal forage dependency  
2 is most closely associated with the permit size category of 500  
3 or fewer AUMs. This operation is assumed to have 650 AUMs (90 \*  
4 12 months \*.6). The 210-cow operation with 30 percent  
5 dependency and 760 AUMs is also representative of this permit  
6 size category.

7 Although permittees respond to reduced forage mainly by  
8 decreasing their herd sizes, they can also respond in other ways  
9 to somewhat offset losses of federal forage. Responses may  
10 include substituting other forage, such as by leasing more  
11 private pasture; using supplemental feed, such as hay; increasing  
12 the productivity of private lands, such as by pushing ditches  
13 further up sideslopes or installing wells and center pivot  
14 sprinkler systems to increase vegetation on private property; and  
15 encouraging federal agencies and state game officials to install  
16 wildlife bait stations to keep elk and deer in the uplands to  
17 reduce competition for forage.

18 Reductions in federal forage would have the greatest effect on  
19 permittees who most highly depend on such forage to meet their  
20 feed requirements. Impacts of reductions would vary with the  
21 financial condition of the ranch. Unprofitable ranches would be  
22 further stressed by reductions in federal forage and increases in  
23 grazing fees. The more profitable an operation, the better it  
24 would deal with higher fees and reduced access to federal forage.

25 The effect of reduced federal forage and higher grazing fees  
26 would also depend on a ranch's flexibility in finding and  
27 purchasing alternative forage sources. Ranches with the fewest  
28 alternatives and least flexibility would reduce their herds the  
29 most in response to higher fees and fewer AUMs. Even ranches  
30 that do not greatly depend on federal forage would be stressed by  
31 reductions if they cannot find affordable alternative forage.

32 Several proposed regulation changes might also affect ranch  
33 operations. Permittees are most likely to be affected by  
34 surcharges for subleases and pasturing agreements on BLM permits,  
35 full force and effect decisions, and conservation use.  
36 Surcharges for subleases and pasturing agreements would reduce  
37 the profitability of such practices and reduce ranch income for  
38 affected permittees. Placing decisions into full force and effect  
39 might reduce ranch income to the extent that it limits livestock  
40 production.

41 The impacts of reduced federal forage, higher grazing fees, and  
42 regulation changes would be somewhat lessened by phasing in an  
43 increase in grazing fees over a 3-year or longer period.  
44 Additionally, the gradual reduction in federal forage over the  
45 long term would also let permittees change their operations.  
46 Another potential mitigating measure that would lessen impacts  
47 would be a two-tiered grazing fee system allowing small family



1 ranches to pay a lower fee than larger commercial operations.  
2 Increases in Range Betterment Funds resulting from higher grazing  
3 fees might also help mitigate losses to ranch operations by  
4 funding more improvements that benefit livestock.

#### 5 GRAZING FEE RECEIPT AND PAYMENT IMPACTS

6 Table 4-6 shows the changes in grazing fee receipts under the  
7 Proposed Action. In the short term, these changes (whether  
8 decreases or increases) would be greater under the Proposed  
9 Action than under Current Management due to greater short-term  
10 forage reductions. In the long term, fee receipts under the  
11 Proposed Action and Current Management would be virtually the  
12 same.

13 Keeping the current PRIA fee would cause receipts to decline by  
14 12 percent (\$3.7 million) over 5 years and by 21 percent (\$6.5  
15 million) over 20 years.

16 Under all other fee levels, grazing fee receipts would increase  
17 over current conditions. The federal forage fee (alternative 5)  
18 would generate the lowest increase over time: \$3.6 million (12  
19 percent) in 5 years , and \$77,000 (0.2 percent) in 20 years.

20 The regional fees (alternative 4) would generate the greatest  
21 increases: \$62.1 million (202 percent) in 5 years and \$52.6  
22 million (171 percent) in 20 years.

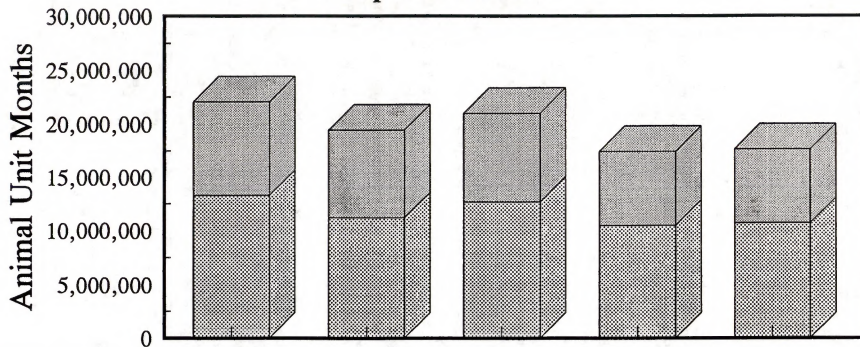
23 The BLM-Forest Service proposed fee formula (alternative 3) would  
24 generate increases between these two extremes: \$31.5 million in 5  
25 years (102 percent, double the current estimated receipts of  
26 \$30.8 million), and \$25.2 million (82 percent) in 20 years.

27 A surcharge on subleasing and pasturing agreements might also  
28 increase grazing fee receipts. The extent of the impact would  
29 depend upon the types of arrangements (whether subleasing,  
30 pasturing agreement, or both) and the number of AUMs involved in  
31 such arrangements.

32 Table 4-6 also shows the distribution of receipts to Range  
33 Betterment Funds, payments to states and counties, and revenues  
34 to the U.S. Treasury. Assuming that the distribution of grazing  
35 fee receipts remains the same, these three categories would  
36 change by the same percentage. Grazing fee receipts are also  
37 shown separately for both BLM and the Forest Service.

Figure 4-6

## Available Livestock Forage In Animal Unit Months Proposed Action



	1993	PA Short Term	CM Short Term	PA Long Term	CM Long Term
BLM	13,303,068	11,198,593	12,673,580	10,463,106	10,698,035
Forest Service	8,765,829	8,238,280	8,323,936	6,969,338	6,950,267
Total	22,068,897	19,436,873	20,997,516	17,432,444	17,648,302

AUMs are estimated for both the  
Forest Service and BLM

Also see Table 2, Proposed Action, in Appendix Q, Total Grazing Fee Receipts After 5 Years and 20 Years Under Different Fee Alternatives, for total grazing fee receipts under all fee levels.

## SOCIAL CONDITIONS

### PERMITTEES

In the short term under the Proposed Action, the average permittee with 210 cows and a 30 percent dependency rate would experience a \$679 decline in income annually at the current fee level, \$2,289 at \$3.96/AUM; and \$3,686 at \$6.38/AUM. In the long term, the losses for the same average permittee would be \$1,187 in income annually at the current fee level, \$2,632 at \$3.96/AUM, and \$3,887 at \$6.38/AUM. (See Table 4-5, Impacts to Ranch Operations.) The size of the loss for any permittee would depend on the size of the ranch, the dependency on federal forage, the amount of forage lost, and the grazing fee. The effect of the loss on any individual permittee would vary, depending on the size of the loss, the financial condition of the operation, the price of beef, operating costs, and the dependence of the ranch family on the operation.

Losses in ranch income could decrease the economic well-being of affected permittees and their families. Lifestyle changes in response to the income loss could include families decreasing their spending, diversifying their operations to make them less dependent on ranching, or sending family members to work off the ranch to earn more income. Economically marginal ranches may be encouraged to sell, either to other ranchers (it is anticipated that the demand for available AUMs for livestock grazing would continue) or to developers in regions where demand for rural homesites is increasing. Most permittees would try to adjust their operations to absorb the income losses rather than sell their ranches because maintaining the ranching lifestyle is important to them.

Under the Proposed Action at all fee levels, losses in income would be similar to losses under Current Management. But changes in regulations under the Proposed Action might also require permittees to more intensively manage their operations--move cattle more often and maintain more fencing. Representing a change in emphasis from Current Management, the Proposed Action would result in more of the social consequences described in the Impacts Common to All Alternatives Section at the beginning of Chapter 4 than would Current Management.

Permittees are specifically concerned about the reductions in forage, the broadened representation on advisory boards and councils, BLM ownership of all future range improvements,

1 surcharges for subleasing, and declines in permit values that  
2 would reduce ranch values. From the perspective of many in the  
3 ranching community, the Proposed Action, particularly at a higher  
4 fee level, would intensify some of their feelings of mistrust and  
5 loss of personal control and would further threaten their  
6 lifestyles. The resulting negative attitudes toward BLM and the  
7 Federal Government in general would make it more difficult for  
8 BLM to work with permittees. On the other hand, Multiple  
9 Resource Advisory Councils will provide a forum for permittees,  
10 other public land users, and BLM to build consensus.

## 11 COUNTRIES AND COMMUNITIES

12 Job losses at all fee levels would be insignificant at the  
13 westwide level. Some of the projected declines in employment  
14 would be absorbed through retirements and people seeking other  
15 types of work in the normal course of their lives.

16 Westwide in the short term under the Proposed Action, 1,680 jobs  
17 would be lost at the current fee level, between 2,050 and 2,170  
18 jobs would be lost at \$3.96/AUM, and 2,710 jobs would be lost at  
19 \$6.38/AUM. In the long term, 2,760 jobs would be lost at the  
20 current fee level, between 3,090 and 3,200 jobs would be lost at  
21 \$3.96/AUM, and 3,680 jobs would be lost at \$6.38/AUM. These  
22 losses represent jobs in all sectors of the economy--ranch  
23 employment and jobs that directly and indirectly relate to  
24 ranching. Under the Proposed Action, more jobs would be lost than  
under Current Management.

26 The Proposed Action's effects could include the outmigration of  
27 some permittee families whose operations or businesses could not  
28 support them. The level of outmigration would depend on the  
29 financial condition of the permittees, their job skills, and  
30 employment opportunities in the local area. "Typical small  
31 communities" (as described in Chapter 3) are most likely to be  
32 affected under this alternative because they are now losing  
33 population and cannot respond well to change.

34 In other areas, such as Gunnison County, Colorado, population  
35 declines from permittee family outmigration might be offset by  
36 people moving into the area as part of the rural development  
37 trend. New people might have different attitudes and values than  
38 the people leaving the area and would probably place less  
39 importance on the traditional values of ranching families. The  
40 potential effects of job and population loss on local communities  
41 are described in the Social Conditions discussion of the Impacts  
42 Common to All Alternatives section at the beginning at Chapter 4.

43 Grazing fee increases would be highest in areas with a high  
44 average dependency on federal grazing, such as Gunnison County.  
45 The effects of these fee increases would depend on the financial  
46 condition of local ranches and local economic conditions. In



1 areas where there are few permittees, the community population is  
2 large, and the economy is diverse, fee increases would be  
3 insignificant at the county and community level.

4 In many communities such as Rawlins, Wyoming, permittees and many  
5 residents would be concerned about the change in emphasis away  
6 from livestock management. Although recreation quality would  
7 improve, local recreationists and those promoting recreation as a  
8 way to diversity the local economy would probably not favor the  
9 Proposed Action because of its potential to harm permittees and  
10 the community.

11 In areas where rural development is occurring, there is a concern  
12 among ranchers and some newcomers that Rangeland Reform '94 will  
13 accelerate the urbanization process.

14 In areas where the population is more diverse, such as Gunnison  
15 County, the Proposed Action would probably appeal to newcomers,  
16 environmentalists, recreationists, and those interested in  
17 tourism. Because it might harm some permittees, recreationists  
18 and environmentalists who fear the loss of recreation access and  
19 open space from development might not support the Proposed  
20 Action. In the short term, differences in opinions and values  
21 among community groups could result in less cooperation and  
22 support among groups within these communities.

23 Residents would tend to attribute any sale of a permittee  
24 operation to changes in livestock grazing on federal lands, even  
25 if the sale resulted from other factors. Permittees and other  
26 residents might increasingly resent and distrust the Federal  
27 Government. But most permittees would continue to run their  
28 ranches, and the open spaces and rural lifestyle that most county  
29 residents value would remain largely intact. Therefore, the  
30 social effects of the Proposed Action, including community  
31 divisiveness and a feeling of lack of control, would diminish  
32 over time.

### 33 **NATIONAL IMPACTS**

34 Increasing numbers of people in the West and across the country  
35 believe that rangeland management should emphasize protecting  
36 rangeland resources rather than managing livestock. The Proposed  
37 Action is consistent with these attitudes. People who favor the  
38 Proposed Action would feel satisfied about government in general,  
39 BLM and the Forest Service, and the policymaking process.  
40 Raising Grazing fees would be consistent with these attitudes.

41 Some recreationists and environmentalists would believe the  
42 Proposed Action offers a proper balance between livestock grazing  
43 and protecting wildlife and riparian areas. Others, however,  
44 might feel that the Proposed Action does too little to protect  
45 these areas. Generally, people living close to the affected



1 communities would support the livestock industry more than those  
2 living further away.

3 Increasing numbers of people across the country, including some  
4 ranchers who are not permittees, feel livestock grazing fees  
5 should be increased. Raising grazing fees would be consistent  
6 with these attitudes.

#### 7 MITIGATION

8 The following mitigation is proposed to achieve higher rates of  
9 improvement in riparian and other areas with important resources  
10 while rewarding good stewardship with more responsibility and  
11 management flexibility and longer permits tenures. This  
12 mitigation would also respond to scoping comments that urged BLM  
13 to focus its management on areas most in need of improvement and  
14 that questioned how the agencies will fund a new management when  
15 they are already underfunded.

16 Applying only to BLM-administered lands, this mitigation would  
17 focus BLM employees and resources on riparian areas that are  
18 nonfunctioning or functioning but susceptible to degradation or  
19 on important uplands with similar problems.

20 Elements of the Proposed Action would be applied to BLM public  
21 lands in one of three ways.

1. Intensive management would focus on about 5,000 allotments  
involving 84 million acres.

24 ♦ Regional standards and  
25 guidelines would (1) provide  
26 minimum environmental  
27 standards centered on the  
28 concept of properly  
29 functioning systems, 2)  
30 require that actions be taken  
31 immediately to correct  
32 nonfunctioning systems, and  
33 3) require that actions also  
34 be taken to improve the  
35 health of systems that are  
36 functioning but susceptible  
37 to degradation.

38 2. Administrative efficiency could affect about 10,000 BLM  
39 allotments and 18.5 million acres where BLM would act to improve  
40 efficiencies in the following areas:

41 ♦ Areas with scattered,  
42 isolated tracts of public  
43 land, where present

management is accomplishing the desired results.  
Areas where ecological condition is acceptable.  
Areas with few resource use conflicts or controversies.  
Areas with low forage production capabilities, or areas producing near their potential.  
Areas where the land is producing near its potential.  
Areas lacking opportunities for positive economic return from public investments or whose opportunities are constrained by technological or economic factors.

In such areas the following actions would be taken to improve efficiencies:

A 10-year permit would be issued, and the permittee would be billed at the beginning of the term for the entire 10-year period.  
BLM's presence would be slight.  
Little monitoring would be required.

In these situations, the grazing permit's terms would outline the basic requirements. As long as the permittee followed these terms, the 10-year incremental authorization would continue.

3. Flexibility provisions would allow BLM to build good relationships with permittees by rewarding good stewardship with long-term leases, management flexibility, and a reduced BLM presence. This provision could affect up to 5,500 BLM allotments and about 42 million acres.

Areas that are properly functioning as a result of the permittee's good stewardship would be eligible for operating under an agreement that would give the permittee the greatest flexibility with the least BLM involvement or supervision except for periodic consultations and compliance checks.

BLM would fulfill its responsibilities under laws and regulations but would select areas for this provision through an open process with public involvement in compliance with the National Environmental Policy Act. Local communities would be involved

1 through multiple resource advisory councils, which would play lead roles in decisionmaking.

## ALTERNATIVE 3: LIVESTOCK PRODUCTION

### GRAZING ADMINISTRATION

#### LIVESTOCK USE LEVELS

The background trends shown in BLM and Forest Service statistical reports (BLM 1992a; FS 1993a) and discussed under Current Management are expected to continue under the Livestock Production and other alternatives. The short-term trend would be similar to that under Current Management in that forage grazed is projected to decline by 4 percent for both agencies. But as the focus of resource management shifts from multiple use to livestock production, vegetation manipulation and range improvements would allow more forage to be produced for livestock, partially offsetting long-term trends projected for Current Management. (See Figure 4-11.) Forage consumed on BLM-administered lands would decline by 10 percent in the long term. Forage consumed on National Forest System lands would decline at a sharper rate--14 percent--because these lands have less potential to grow more forage through vegetation manipulation.

Under Livestock Production, the national trend in federal forage consumed by livestock over a 20-year period would continually decline. The trend in the Columbia Basin, however, would at first decline but then increase slightly above existing conditions. The increased forage would result from seeding nonfunctioning areas to perennial grasses.

#### PROGRAM EFFICIENCY AND EFFECTIVENESS

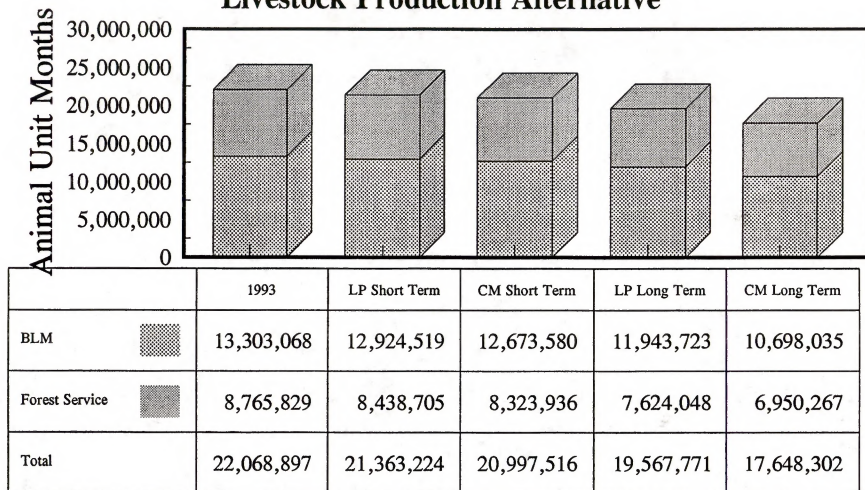
BLM's workload would increase in the short term as it develops and implements regional standards and guidelines, including regional National Environmental Policy Act (NEPA) analyses. But under Livestock Production, regional standards and guidelines, with agency employees, permittees, and grazing advisory boards as the main participants, would probably be developed faster than under a broad multiple interest approach. The resulting standards and guidelines would focus more on livestock forage and watershed conditions and less on other resource issues such as wildlife, biodiversity, and sensitive species.

In the long term, regional standards and guidelines would help to focus BLM management direction within each region and would improve agency efficiency in meeting management objectives.

Other aspects of this alternative would have mixed effects on agency efficiency and effectiveness. Changes in grazing regulations relating to nonuse, grazing advisory boards, and range improvement ownership would tend to allow BLM and the Forest Service to more efficiently administer their rangeland

Figure 4-11

## Available Livestock Forage In Animal Unit Months Livestock Production Alternative



AUMs are estimated for both the  
Forest Service and BLM



1      Insert Figure 4-11.

1 programs. Aspects relating to the use of Range Betterment Funds  
2 and appeal provisions, however, would make the agencies less  
3 efficient in accomplishing resource management objectives.

4 Under Livestock Production, BLM and the Forest Service would  
5 encourage permittees and applicants to follow the conditions of  
6 permits by requiring them to have satisfactory performance  
7 records to obtain grazing permits and disqualifying them if their  
8 permits have been canceled for violating agency regulations.

9 The number of grazing transfers on Forest Service-administered  
10 lands would significantly increase due to increased leasing.  
11 Workloads would increase when the Forest Service begins to  
12 authorize base property leases and livestock pasturing  
13 agreements.

14 Under Livestock Production, BLM and Forest Service regulations  
15 would be more alike than at present, making it easier to  
16 coordinate management on adjoining lands.

17 The Livestock Production alternative would have the following  
18 other impacts.

19 ♦ Authorizing grazing advisory  
20 boards to determine the  
21 validity or appropriateness  
22 of base property and  
23 livestock leases would lessen  
24 BLM's administrative  
25 workload.

26 ♦ Issuing 20-year permits to  
27 good stewards would reduce  
28 the administrative workload  
29 of reissuing permits.

30 ♦ Allowing nonmonetary  
31 settlements for incidental  
32 unauthorized use would  
33 improve the efficiency of BLM  
34 and Forest Service employees  
35 and reduce their  
36 administrative workload.

37 ♦ Tracking and maintaining  
38 records of suspended nonuse  
39 would continue to create  
40 administrative inefficiency.  
41 Personal and political  
42 pressure to reinstate  
43 suspended nonuse would create  
44 even more inefficiency.

1 ♦ Requiring the Forest Service  
2 to work with grazing advisory  
3 boards in setting priorities  
4 for the use of Range  
5 Betterment Funds would add to  
6 this agency's workload.

7 ♦ Changing the Forest Service's  
8 water rights policy would  
9 improve the consistency  
10 between BLM and the Forest  
11 Service.

12 Under Livestock Production as under Current Management, appealed  
13 BLM grazing decisions would be automatically stayed from  
14 implementation until any appeals are resolved.

15 The time and money spent by the agencies would be greatly reduced  
16 by transferring administrative roles to grazing associations  
17 formed by grazing advisory boards. These responsibilities would  
18 include resolving unauthorized use, enforcing permit compliance,  
19 and collecting grazing fees. Agency positions would shift away  
20 from administrative duties.

21 Management under the Livestock Production alternative would  
22 emphasize local livestock production and cultural and traditional  
23 values. Grazing advisory boards would influence the development  
24 of goals and objectives. If these goals did not recognize  
25 natural resource management, either to sustain or improve  
26 resource conditions, interested publics would likely appeal  
27 agency decisions to implement prescribed management. These  
28 appeals would increase agency workloads and decrease agency  
29 effectiveness in managing resources and efficiency in carrying  
30 out other duties.

#### 31 **AVAILABILITY AND USE OF RANGE BETTERMENT FUNDS**

32 The amount of Range Betterment Funds going to BLM and the Forest  
33 Service under the Livestock Production alternative would depend  
34 on the grazing fee formula selected for implementation. For  
35 example, if the current grazing fee formula is retained, Range  
36 Betterment Funds would decline over the long term by 12 percent  
37 (from a 3-year average of \$15.4 million per year to \$13.5 million  
38 per year). This decrease would result from a projected decline  
39 in livestock use on federal lands and an accompanying decline in  
40 grazing fee receipts.

41 A 12 percent decrease in Range Betterment Funds, coupled with  
42 rising costs for range improvements, would allow far fewer range  
43 improvements to be built in the future. Furthermore, this  
44 funding would continue to be needed to maintain and rebuild

existing projects where the agency has the responsibility, and in the long term would be insufficient even for maintenance.

Alternative sources of funding, including increased permittee contributions, agency appropriations, and contributions from other sources, would become more important just for maintaining the current level of management. Without such funding, some existing fences and water development for livestock grazing on public lands would eventually fall into disrepair, and livestock use would become increasingly difficult to manage. Fewer allotment management plans would be implemented each year, and progress in meeting resource management objectives would be slowed. Riparian habitat and other resource conditions would increasingly deteriorate and could eventually result in the need to reduce livestock use even more than currently projected.

Since spending priorities for Range Betterment Funds would be determined by grazing advisory boards, funding would generally be targeted toward maintaining and rebuilding existing projects that favor livestock forage production and use. Few or no Range Betterment Fund dollars would be devoted solely to other resource management objectives.

Under the BLM-Forest Service proposed grazing fee formula or regional fees, Range Betterment Funds would increase by 102 percent (to \$31.2 million per year) or 202 percent (to \$46.5 million per year) respectively. Such large increases in Range Betterment Funds would more than offset rising costs of range improvements and would generally mean that more range improvements could be built, maintained, and rebuilt.

Because grazing advisory boards would determine spending priorities for Range Betterment Funds, most projects would favor livestock forage production and use. Large investments in vegetation treatments, such as prescribed burning, chaining, and similar projects, would increase. But given the size of potential increases in Range Betterment Funds, a small portion might be devoted to resource monitoring or to other resource management objectives.

The net result of higher funding levels over the long term would be a substantial increase in the agencies' abilities to implement, maintain, and rebuild range improvements aimed at a relatively narrow range of resource management objectives. The need for alternative sources of funding would correspondingly decrease.

#### **VEGETATION**

Under the Livestock Production alternative, permittees wanting a 20-year permit would have to apply livestock management practices that would improve rangeland conditions. But the extended length



of permits, once obtained, could act as a disincentive, allowing permittees to avoid further compliance with permit conditions.

Developing livestock management plans with grazing advisory boards and permittees instead of a broader range of interested publics would not greatly affect the overall health of upland vegetation communities but might result in less emphasis at the ground level on managing vegetation for such needs as wildlife, threatened and endangered species, and recreation.

As under Current Management, BLM under the Livestock Production alternative would immediately implement resource decisions in emergencies to stop resource deterioration. The automatic staying of all other appealed decisions would lead to the continued short-term decline in vegetation conditions until the appeal has been resolved and better management is implemented. Impacts would be significant on a local basis as problems occur.

Ecosystem goals and objectives would be developed mainly through consultation with grazing advisory boards and with a strong emphasis on the human use of rangeland ecosystems. The resultant management would fall short of meeting the vegetation requirements of a well-balanced ecosystem. Equal emphasis would not be placed on the requirements of upland vegetation for nonhuman needs such as wildlife, wild horses and burros, and threatened and endangered species.

#### UPLAND

In the long term, about 60,141,000 acres (82 percent) of Forest Service uplands would either be meeting objectives or moving towards objectives (an increase of 2 percent from 1993). Another 13 million acres (18 percent) would not be meeting objectives (a decrease of 9 percent from 1993). (See Figure 4-12.)

In the short term, BLM upland acres in proper functioning condition would slightly increase, upland acres functioning but susceptible to degradation would slightly decrease, and upland acres in nonfunctioning condition would also slightly decrease.

In the long term, about 129 million acres (81 percent) of BLM upland acres would be in proper functioning condition (an increase of 40 percent). Another 12.5 million acres (8 percent) would be functioning but susceptible to degradation (a decrease of 75 percent), and 17.5 million (11 percent) of BLM upland acres would be nonfunctioning (a decrease of 15 percent). (See Figure 4-13.)

Under the Livestock Production alternative, areas having 12 inches or more of precipitation a year would change in ecological status from lower to higher seral stages. And in the long term the vegetation in some areas would decline from potential natural



1 communities to late seral stages and from late to mid seral  
2 stages because of overgrazing, fire, and drought. Most  
3 improvement would occur on areas in the early seral stages moving  
4 into the mid and late seral stages. This change would differ by  
5 administrative area since a vegetation community's management  
6 would depend on achieving objectives that differ according to  
7 resource needs.

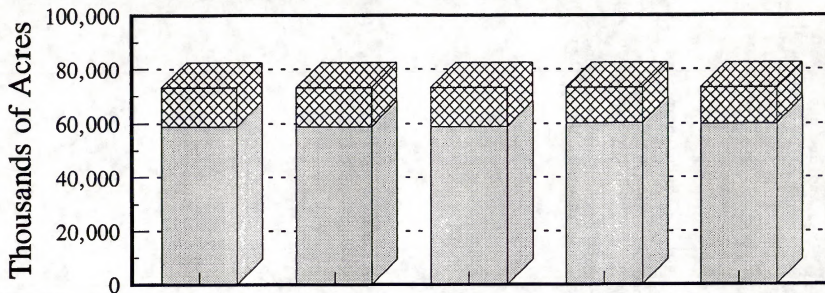
#### 8 Sagebrush

9 General conditions and trends of sagebrush communities would  
10 improve under Livestock Production. The density of sagebrush and  
11 other brush would decrease because rangeland management would  
12 emphasize watershed improvement and livestock forage production.

13 Changes in ecological condition and trend would depend on the  
14 site and the treatment. For sites in lower seral stages because

Figure 4-12

# **Change in Status - Forest Service Uplands** **Livestock Production Alternative**

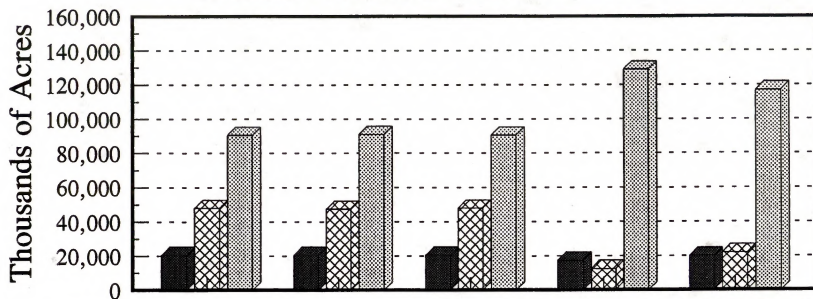





	1993	LP Short Term	CM Short Term	LP Long Term	CM Long Term
Mitg/Moving To Objectives	58,868	58,868	58,868	60,141	59,949
Not Meeting Objectives	14,324	14,324	14,324	13,051	13,243
Total Acres	73,192	73,192	73,192	73,192	73,192

Figure 4-13

# Changes in Functioning Condition - BLM Uplands

## Livestock Production Alternative



	1993 Est.	LP Short Term	CM Short Term	LP Long Term	CM Long Term
Nonfunctioning 	20,500	20,500	20,500	17,500	20,000
Functioning at Risk 	48,000	47,500	48,000	12,500	22,000
Functioning 	90,500	91,000	90,500	129,000	117,000
Total Acres	159,000	159,000	159,000	159,000	159,000

1     Insert Figure 4-13.

of excessive brush, management would try to increase the amount of grass to place the area at a higher seral stage. Typical improvement strategies would include burning or such mechanical treatments as chaining or railing.

Sagebrush areas having less than 12 inches of annual precipitation would not improve significantly except for nonfunctioning areas receiving vegetation manipulation treatments. These areas would probably be seeded with perennial grass-forb mixes and would improve to proper functioning condition. Without treatment, trend in the lower precipitation areas would not significantly change in the long term.

In the short and long term under Livestock Production, most sagebrush communities on Forest Service-administered lands would continue to meet or move toward management objectives at the same rate as under Current Management. Most sagebrush communities would be meeting objectives in the long term because most are in the 16 inch and above precipitation zones. Higher precipitation and better soils would allow these communities to improve to meet management objectives.

#### Desert Shrub

Ecological condition would not significantly change in the Mojave and Sonoran deserts, where plant communities consist largely of unpalatable shrubs and annual forbs. Climate, particularly long periods of hot temperatures and low precipitation, would help slow the movement of plant communities from low to higher seral stages. Plant litter and canopy cover of the more palatable shrubs would decrease. Revegetation is a long-term process that cannot be induced in this low precipitation and high salinity zone.

The potential of the alkali desert shrub (cold desert) community to move to higher seral stages is slightly better than that of hot desert communities, precipitation remaining a key limiting factor in the change. But the Livestock Production alternative would improve vegetation condition because of its increased emphasis on helping vegetation communities dominated by herbaceous plants. With management improving as a result of regional standards and guidelines and the emphasis on preserving special status plants and animals on these sites, vegetation condition would slowly improve. Most livestock permittees want their children to inherit ranches in better condition than when acquired and realize that they cannot reach this goal through heavy grazing (Holechek and others 1989).

#### Southwest Shrubsteppe

Under the Livestock Production alternative, the trend of increasing ground cover of grasses would continue. The condition



of the shrubsteppe ranges of southern New Mexico and southeast Arizona has been improving since the drought of the 1950s, when grass cover declined by as much as 75 to 90 percent. Since the 1950s increased grass cover has resulted from favorable rainfall and management changes. Although the general trend would be to increase grass cover, the response would vary depending on site characteristics and weather patterns. Sites with harsh growing conditions would not improve much in 20 to 30 years. Many sites would continue to be dominated by shrubs unless they are controlled by chemical or mechanical methods (Holechek and others 1989).

#### Chaparral-Mountain Shrub

Under Livestock Production, stands of scattered shrubs would have an upward trend, but dense stands would not change without fire or other treatment. Vegetation projects would increase.

#### Pinyon-Juniper

Stands of scattered pinyon-juniper would have an upward trend under Livestock Production, but dense stands would not change without fire or other treatment. Vegetation treatments would increase.

#### Mountain and Plateau Grasslands

Over the long term, the Livestock Production alternative would slowly increase palatable grass, forbs, plant vigor, and vegetation litter.

#### Plains Grasslands

As climate allows, plains grasslands would gradually trend upward in succession. Wheatgrasses and needlegrasses would increase in composition relative to blue grama, Sandberg bluegrass, prairie junegrass, and sedges. Where clubmoss or blue grama prevail, sites are not likely to change without disturbance. Mainly sites near the upper end of the seral stage would move to the next seral stage.

Livestock would closely graze nonriparian wooded draws under season-long use. Although grazing would continue to be heavier in these draws than in surrounding areas, periodic rest from grazing and reduced time of grazing would benefit these areas more than adjacent higher areas that have traditionally been more lightly grazed. Under continuous summer grazing, these wooded draws would change or undergo a downward trend because tree seedlings could not become established.

#### Annual Grasslands

Palatable annual grasses, annual forbs, vigor, and vegetation litter would slowly increase over the long term.

### Alpine Grasslands

Alpine ecosystems would not change significantly under the Livestock Production alternative.

### Coniferous and Deciduous Forests

Under Livestock Production, undesirable species such as firs would continue to invade deciduous areas, but coniferous forests would not change much.

### RIPARIAN/WETLAND/AQUATIC

Establishing regional standards and guidelines would result in inconsistent resource management. Standards and guidelines would most likely emphasize the needs of livestock permittees rather than ensuring the management of sustainable resources other than watershed stability and livestock forage conditions. Although riparian area condition would improve in limited areas, overall riparian resource condition would continue to decline.

The Livestock Production alternative would greatly expand the role of grazing advisory boards, which would consist of livestock permittees. Management emphasis would concentrate on issues benefitting the livestock industry and maintaining forage condition and availability. Although regional standards and guidelines might recognize the value and need to restore riparian resources, many grazing advisory boards would not support hard decisions to better manage livestock for riparian protection. By reducing options and narrowing the focus of resource management, grazing advisory boards under the Livestock Production alternative would contribute to the continued decline of riparian area condition. (See Figures 4-14 and 4-15.)

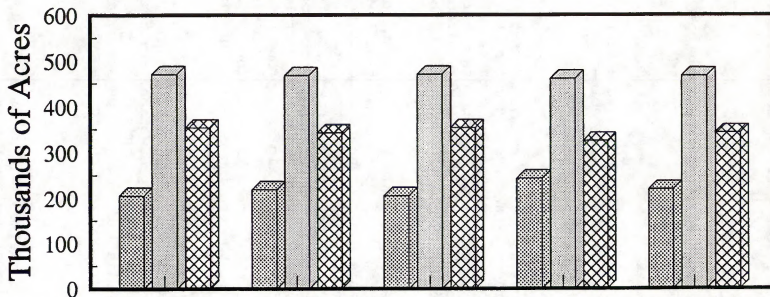
Management under the Livestock Production alternative would consider sustainable diversified ecosystems to be secondary to the socioeconomics of western livestock production. Without the maintenance of ecosystem integrity as the basis of management, BLM might not be able to maintain functioning ecosystems, and overall riparian resources would decline, further reducing biodiversity.

In the long term, 1,527,902 acres (about 70 percent) of Forest Service riparian areas would either be meeting objectives or moving towards objectives (a decrease of 10 percent from 1993); another 663,357 acres (30 percent) would not be meeting objectives (an increase of 37 percent from 1993).

Figure 4-14

## Changes in Functioning Condition - BLM Riparian Livestock Production

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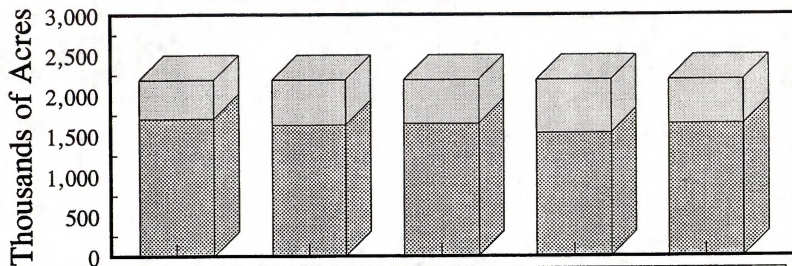


	1993 Estimated	LP Short Term	CM Short Term	LP Long Term	CM Long Term
Nonfunctioning	205.0	218.6	205.0	242.7	219.1
Functioning At Risk	470.3	467.7	470.3	460.8	466.8
Proper Functioning	353.1	342.1	353.1	324.9	342.5
Total	1,028.4	1,028.4	1,028.4	1,028.4	1,028.4

Figure 4-15

# Change in Status - Riparian Forest Service

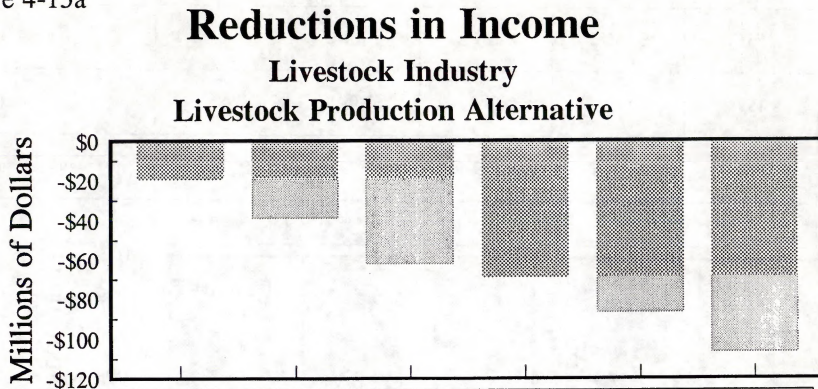
## Livestock Production Alternative



	1993 Estimated	LP Short Term	CM Short Term	LP Long Term	CM Long Term
Meeting Objectives	1,707.0	1,628.4	1,643.3	1,527.9	1,639.5
Not Meeting	484.3	562.9	548.0	663.4	551.8
Total	2,191.3	2,191.3	2,191.3	2,191.3	2,191.3



Figure 4-15a



Alternative	Short Term PRIA	Short Term Proposal	Short Term Regional	Long Term PRIA	Long Term Proposal	Long Term Regional
Management Actions	-19	-19	-19	-69	-69	-69
Fee	0	-20	-43	0	-18	-38
Total	-19	-39	-62	-69	-86	-107

BLM and Forest Service Permittees Only



1 In the long term, 324,900 acres (about 32 percent) of BLM  
2 riparian areas would be properly functioning (a decrease of 8  
3 percent from 1993). Another 460,800 acres (45 percent) would  
4 become functioning but susceptible to degradation (a decrease of  
5 2 percent from 1993). About 242,700 acres (24 percent) would be  
6 nonfunctioning (an increase of 18 percent from 1993).

7 Grazing impacts to mountain meadows would be accelerated as a  
8 result of the great emphasis placed on improving livestock forage  
9 and watershed conditions on uplands.

10 For the short to mid term, mountain meadows would continue to  
11 experience loss of watershed function; lowering of water tables;  
12 and an invasion by undesirable trees, shrubs, forbs, and annuals.  
13 Within the long term, as regional and local standards and  
14 guidelines are implemented, residual plant material, especially  
15 grasses, sedges, and forbs, would notably increase.

#### 16 WATERSHED

##### 17 UPLAND

18 With climatic variations being the dominant influence, watershed  
19 condition under the Livestock Production alternative would change  
20 little in the short term. In the long term, uplands would remain  
21 static or slowly improve at a steady rate due to increased  
22 vegetation and litter cover, improved physical soil properties,  
23 and a corresponding decrease in runoff and erosion. (See Figures  
24 4-12 and 4-13 for short- and long-term estimates of upland  
25 conditions in BLM- and Forest Service-administered lands.)

26 The upland gully network would respond slowly to these  
27 improvements, and many upland areas would not improve much. As a  
28 result, the size and frequency of runoff events would not change  
29 in many areas.

30 The desert shrub, pinyon-juniper, and sagebrush communities with  
31 less than 10 inches of precipitation would respond slowly to  
32 management actions.

33 The uplands within the Rocky Mountains and High Plains analysis  
34 area would remain static or improve at a slow, steady rate. Some  
35 areas, however, would not achieve proper functioning condition  
36 within the long term. Grazing management would be the tool most  
37 commonly used to improve upland watershed conditions on areas  
38 that are functioning at risk. Nonfunctioning areas would be  
39 improved through a combination of grazing management and a  
40 reduction in livestock grazing.

41 Overall under the Livestock Production alternative, nonpoint-  
42 source pollution from livestock would remain at existing levels

in uplands. The emphasis on livestock production at or near current levels would retard the recovery of vegetation and ground cover on nonfunctioning uplands while maintaining accelerated rates of erosion and overland flow. As a result, sediment yields and other pollutants (fecal bacteria, salinity, and nutrients) carried by overland flow would remain at existing levels. Nonpoint-source salinity in the Colorado River basin from arid-desert shrub communities would also continue at existing rates in both the short and long term.

Regional standards and guidelines would focus on livestock forage and watershed conditions and somewhat less on other resources such as sensitive species, wildlife, and biodiversity. Without national requirements, BLM would not have an umbrella of uniformity for regional standards and guidelines.

#### **RIPARIAN/WETLAND/AQUATIC**

With the emphasis on livestock production, grazing would continue at or near existing levels. Uplands that are either nonfunctioning or functioning but susceptible to degradation would improve little in vegetation and ground cover conditions. Consequently, erosion and runoff rates from uplands would continue to accelerate over the short term and slightly diminish over the long term. Accelerated runoff and sediment yield would result in unstable channel conditions. Only a minority of riparian-stream systems would improve under management plans. (See Figures 4-14 and 4-15.)

Continuing to graze near existing levels, livestock would congregate in and overgraze riparian areas. Sediment produced from livestock trampling of streambanks and riparian areas would slightly increase over the long term. Livestock disturbance would continue to alter stream channel structure, resulting in widened or incised channels. As a result, the beneficial hydrologic functions of these riparian areas (floodplain function, water quality maintenance, flood peak reduction, and groundwater recharge) would remain nonfunctioning or functioning but susceptible to degradation.

Riparian systems whose shrub and tree communities have low vigor and poor reproduction success from past and present livestock use would continue to produce sediment at rates at or above existing levels. Grazing disturbance would slightly increase sediment rates from channels being widened or incised. A continued decline of woody vegetation in riparian areas would result in warmer water temperatures and lower dissolved oxygen levels.

Nonpoint-source pollution from riparian areas would vary from the direct disturbance of continued livestock grazing at or near existing levels. With livestock congregating in and overusing riparian areas, fecal pathogens and nutrient enrichment, being

1 directly correlated with livestock numbers, would continue at or  
2 near existing levels. Sediment produced from trampling of  
3 streambanks and riparian areas would remain near existing levels  
4 through the long term. Sediment at or slightly above existing  
5 levels would be produced by stream-riparian systems with low-  
6 vigor shrub and tree communities or unstable channels resulting  
7 from livestock use.

8 Allowing nonpoint-source pollution to continue at or above  
9 existing levels would conflict with the expected increase in  
10 recreation on public lands, especially where drinking water or  
11 primary and secondary contact recreation waters are involved.

12 Since livestock grazing is not widespread in the Coastal analysis  
13 area, under the Livestock Production alternative, nonpoint-source  
14 pollution from livestock would be restricted to local areas.

15 Over the short term, Livestock Production would benefit the  
16 upland areas most sensitive to public pressure. Watersheds would  
17 be improved where livestock grazing and the environment would  
18 benefit. More money and emphasis would be placed on grazed sites  
19 that are not functioning properly. In local watersheds where  
20 livestock grazing is the main economic use, continued grazing  
21 would degrade the habitat over the long term, especially if  
22 economic interests influence implementing ecosystem management  
23 decisions.

#### **WILDLIFE**

25 Under the Livestock Production alternative, current trends for  
26 both upland and riparian vegetation communities would continue  
27 much as they have in the past decade.

28 Independent regional standards and guidelines would result in  
29 inconsistent grazing management among field offices. This  
30 inconsistency would contribute to the long-term decline in  
31 riparian-dependent wildlife, including waterfowl, fish, and  
32 raptors.

33 Current livestock grazing regulations would limit BLM to  
34 penalizing grazing permittees who are convicted of violating the  
35 Endangered Species Act and Bald Eagle Protection Act. The much  
36 broader Forest Service regulations, covering most environmental  
37 protection and state wildlife laws, would benefit some local  
38 wildlife populations.

39 The inability to control water rights under the Livestock  
40 Production alternative could inhibit BLM and the Forest Service  
41 from redirecting water to benefit wildlife. Many water  
42 developments for livestock grazing on public land do allow  
43 wildlife access through either ramps or overflow. Where the

1 agencies do not own the water right, it could be shut off when  
2 livestock are absent but wildlife would otherwise use them.

3 The Livestock Production alternative could allow the  
4 privatization of water on public lands and reduce habitat quality  
5 by promoting wildlife-livestock conflicts. These direct impacts  
6 would result from intense use around important water sources and  
7 reduced forage and vegetation cover. Diverting water to increase  
8 the distribution and intensity of livestock would also increase  
9 livestock-wildlife conflicts.

#### 10 **BIG GAME**

11 The Livestock Production alternative would maintain local habitat  
12 diversity through land treatment and natural events. The general  
13 vegetation changes would favor species in upper seral stages. For  
14 example, in areas occupied by elk and mule deer, elk would be  
15 favored where cover moves toward greater grass density. Big game  
16 populations would then move toward stability in the long term but  
17 would occupy different proportions of habitats than they do now.  
18 These vegetation trends would favor bighorn sheep and elk,  
19 whereas pronghorn antelope and mule deer habitat conditions would  
20 generally decline due to a shift from brushy to herbaceous  
21 vegetation.

22 The quality of riparian-dependent big game habitat would decline  
23 and become less capable of maintaining populations. These  
24 species would have to rely on less-desirable habitats to replace  
25 riparian habitat component functions.

#### 26 **UPLAND GAME AND NONGAME**

27  
28 The Livestock Production alternative would consider the  
29 socioeconomic interests of livestock grazing more important than  
30 maintaining ecosystems rich in biodiversity and would set  
31 standards and guidelines at a local or regional rather than  
32 national level. When agency decisions would not allow broad-  
33 scale, long-term upward trends in meeting habitat requirements in  
34 riparian and upland areas, upland and nongame populations would  
35 decline.

36  
37 Local decisions would also determine the relative rate of upward  
38 or downward trend for riparian and upland vegetation communities  
39 and would not be effectively analyzed or compared to the other  
40 alternatives. But the rate of development of such guidelines  
41 would also be important in determining impacts on upland game and  
42 nongame. The slower that guidelines are developed, the longer  
43 the current trends for vegetation communities would continue.  
44 Consequently, upland and nongame population trends would continue  
45 much as under Current Management, with a few populations  
46 increasing, some remaining stable, and a significant portion  
47 declining.



1 While some riparian areas would improve in response to local  
2 management priorities, the overall declines would place more  
3 pressure on the upland and nongame species from a shrinking or  
4 degrading resource base. The overall decline in riparian  
5 vegetation condition (see Figures 4-14 and 4-15) would reduce  
6 water, nesting habitat, roosting habitat, forage, and cover for  
7 upland game and nongame. This decline would limit upland game  
8 and nongame populations even though upland habitat would improve.  
9

#### 10 **WATERFOWL**

11 Under the Livestock Production alternative, BLM and Forest  
12 Service, by focusing on sustaining levels of livestock use and  
13 upland forage, would reduce management alternatives and result in  
14 an overall long-term decline of waterfowl nesting and brood-  
15 rearing habitat on 3.9 million acres and along 112,000 miles of  
16 streams.

17 In the long and short term, ecological conditions would be  
18 worsened by implementing local standards and guidelines. Local  
19 management for commodities would de-emphasize ecosystem  
20 management and biological diversity. Unmanaged, heavy livestock  
21 grazing on wet meadows would reduce nesting and cover habitat.  
22 In the short term, by removing protective palatable plant cover,  
23 livestock grazing would allow unpalatable plants to increase. In  
24 addition, hoof action and trampling would continue to damage soil  
25 structure. In the long term these direct adverse impacts would  
26 accelerate erosion, modify stream channels, and reduce water  
27 quality, all harming waterfowl habitat.

#### 28 **RAPTORS**

29 Under the Livestock Production alternative, restoring sustainable  
30 ecosystems would be secondary to local socioeconomic  
31 considerations. Although regional standards and guidelines would  
32 be designed to improve upland or riparian habitats, livestock  
33 production would clearly be emphasized. Impacts to raptors would  
34 be similar to those under Current Management except in riparian  
35 areas, where impacts would be more harmful.  
36

37 Habitat conditions would change slowly in arid uplands. A slight  
38 improvement in uplands would result in slight increase of raptors  
39 that depend on the drier upland habitats for hunting, such as  
40 ferruginous hawks, golden eagles, prairie falcons, and burrowing  
41 owls.

42 Under Livestock Production, the long-term decline in the quality  
43 of riparian habitat would result in overall long-term declines  
44 for raptor populations associated with large woody riparian  
45 vegetation such as cottonwoods and aspens. In riparian habitats  
46 where large woody vegetation was never a part of the normal



1 vegetation composition, raptor populations would not  
2 significantly change.

3 Many cottonwood riparian habitats consist of only scattered  
4 mature and overmature trees with no young trees being  
5 established. Habitat improvement without rest from grazing would  
6 be difficult to achieve. In some riparian habitats woody  
7 vegetation was a part of the presettlement condition but is now  
8 absent because of livestock grazing and other less widespread  
9 actions. These areas would not recover in the short term. Often  
10 more than 20 years would be needed to return them to cottonwood  
11 gallery forests, improving nesting and fledgling habitat for  
12 riparian-dependent raptors. These slow riparian habitat  
13 improvements would benefit species like the red-tailed hawk,  
14 Swainson's hawk, merlin, great-horned owl, common black-hawk, and  
15 sharp-shinned hawk.

#### 16 **RESIDENT AND ANADROMOUS FISH**

17 Riparian improvements and fish habitat improvement projects would  
18 continue to be implemented on a small number of showcase or high-  
19 profile areas. But increased emphasis on livestock production  
20 would result in a greater emphasis on forage production. The  
21 current slightly upward trend in upland range condition would  
22 continue, resulting in slightly better water quality for fish.  
23 Downward trends in riparian condition would continue to degrade  
24 aquatic habitats.

25 Under Livestock Production, permittees would play major roles in  
26 making decisions about public rangelands and would be rewarded  
27 for meeting interdisciplinary resource objectives. This award  
28 system would result in some local improvements for aquatic  
29 habitat, but overall aquatic habitat would continue to decline as  
30 associated riparian conditions decline.

#### 31 **SPECIAL STATUS SPECIES**

32 Under the Livestock Production alternative, special status and  
33 sensitive species would respond to changes in vegetation and  
34 mirror general trends exhibited by wildlife.

35 Range improvement projects would focus on livestock forage  
36 development on uplands. Habitats for riparian- and aquatic-  
37 dependent species would continue to decline. Upland species  
38 dependent upon livestock forage may follow a slight upward trend  
39 over the long term if exotic monocultures are not established.

40 Under Livestock Production, most appealed grazing decisions would  
41 not be immediately placed in full force and effect. Short-term  
42 delays in implementing decisions would result in the incidental  
43 "take" of species in limited areas where management changes are  
44 attempted to protect or increase special status species. "Take"

1 is defined in the Endangered Species Act as follows: to harass,  
harm, pursue, hunt, shoot, wound, kill, trap, capture, or  
collect, or to attempt to engage in any such conduct.

4 By expanding the roles of grazing advisory boards, the Livestock  
5 Production alternative would result in a slight trend away from  
6 promoting restoration and recovery of habitat requirements for  
7 special status species.

#### 8 WILD HORSES AND BURROS

9 Improvement in upland vegetation conditions under the Livestock  
10 Production alternative would increase the amount and quality of  
11 wild horse and burro forage. But grazing advisory boards, with a  
12 bias toward livestock production, would influence the allocation  
13 of more forage toward livestock rather than wild horses and  
14 burros. Advisory board influence would lead to litigation by  
15 those who believe they have not been suitably involved or heard.

16 Under Livestock Production, more range improvements, mainly  
17 privately owned water developments and water rights, some land  
18 treatments, and fences, would be developed to increase livestock  
19 production. The new water developments could benefit wild horses  
20 and burros as water sources, but fences could constrain wild  
21 horse and burro movement and reduce social interaction among  
22 bands.

#### RECREATION

24 Livestock grazing under Livestock Production would affect  
25 recreation user experiences much as would Current Management, but  
26 the more range improvements under Livestock Production would  
27 further degrade the quality of user experiences. Expected  
28 increases in fencing would interfere with all types of cross-  
29 country travel, including travel for fishing and hunting.

30 Livestock Production's effects on developed and undeveloped  
31 recreation sites would be similar to the Current Management's.  
32 But the greater influence of grazing advisory boards under  
33 Livestock Production would constrain opportunities to expand  
34 developed sites more than would Current Management.

35 Scenic values would be more impaired under Livestock Production  
36 than under Current Management because of Livestock Production's  
37 increased emphasis on range improvements and vegetation  
38 manipulation projects for livestock grazing.

39 Opportunities for guides, outfitters, and single events would  
40 decrease more under Livestock Production than under Current  
41 Management because of increased impacts to sites, scenic values,  
42 and user experiences. More range projects, especially fences,  
43 would further complicate the planning and execution of events

1 involving cross-country travel. More pastures and more intensive  
2 livestock use would also conflict more with cross-country events.

### 3 WILDERNESS

4 The Livestock Production alternative would affect wilderness  
5 values the same as would Current Management. In the short term,  
6 new projects would not be developed in areas with wilderness  
7 values. But in the long term wilderness study areas not  
8 designated wilderness by Congress would be subject to loss of  
9 wilderness values by new range projects.

### 10 CULTURAL AND PALEONTOLOGICAL RESOURCES

11 An increase in livestock management facilities and major  
12 revegetation projects under the Livestock Production alternative  
13 would cause ground disturbance, potentially damaging cultural  
14 resources. Adverse impacts to cultural resource would be  
15 minimized through project clearances.

### 16 ECONOMIC CONDITIONS

17 Under the Livestock Production alternative, increased emphasis on  
18 producing livestock forage would slightly slow the decline in the  
19 livestock subsector of the agriculture industry. (These trends  
20 are discussed in Chapter 3.) But ongoing trends in the industry  
21 would continue. These trends are described below.

22 Population growth and demographic changes in the West and in many  
23 western rural communities would continue to transform rural  
24 economies. Population growth in many rural communities, while  
25 contributing to economic growth and diversification, will  
26 continue to diminish the relative importance of agriculture in  
27 those communities. Economic diversification, however, also offers  
28 more opportunities to earn off-ranch income and helps families  
29 maintain their ranch operations. Communities that continue to  
30 lose population and whose economies are in decline may be further  
31 strained by decreases in livestock production.

32 Land use changes could affect community tax bases. The impact to  
33 a local economy of a change in livestock production depends on  
34 the relative size and growth trends in other sectors of that  
35 economy. Where a relatively significant livestock industry  
36 declines, tax revenues have a high probability of declining. On  
37 the other hand, where other sectors of the economy are stable or  
38 growing and a relatively small decline occurs within a large  
39 livestock industry (or a large decline occurs within a small  
40 livestock industry), major impacts to the tax base are unlikely.

41 Changes in land use may accelerate the decline in public access  
42 to public lands where access depends on crossing private lands.  
43 Reduced access may increase the demand for land adjustment (such

as land exchanges or easement acquisition) by BLM and the Forest Service to obtain more access to public lands.

Policies aimed at recovery of endangered species, such as desert tortoises, anadromous fish, and grey wolves, would continue to restrict livestock grazing in endangered species habitat. On the other hand, future activities designed to avert habitat loss and endangered species listings may help sustain livestock production in the long term.

Eliminating the Federal Government's wool subsidy program over the next 3 years could accelerate the decline in sheep production in the West and may cause marginal sheep producers to sell their operations. Other government policies, such as trade agreements aimed at reducing international trade barriers, will also continue to affect the industry. Agreements of this kind may both increase and decrease livestock production, but the direction and magnitude of these impacts is beyond the scope of this EIS. The expiring of Conservation Reserve Program contracts beginning in 1996 might encourage the use of croplands for pasture, thereby increasing forage for livestock.

The most important direct and indirect economic effects that would result from implementing the Livestock Production alternative are discussed in the following sections.

#### **REGIONAL ECONOMIC IMPACTS**

Effects of the Livestock Production alternative on employment and income would stem from two sources: a reduction in federal forage for livestock use and an increase in grazing fees charged for the remaining federal forage. Appendix N, MicroIMPLAN System and Methodology for Estimating Impacts to Employment and Income, describes the methodology used to assess the economic impacts.

Under the Livestock Production alternative, forage would decline by 3 percent overall after 5 years of implementation and by 12 percent overall after 20 years. For Current Management, available forage will decline by 5 percent in 5 years and 20 percent in 20 years (18 percent for BLM and 19 percent for the Forest Service). In comparison, the Livestock Production Alternative would provide 2 percent more AUMs available in the short term (5 years) and 8 percent more in the long term (20 years).

The Livestock Production alternative would result in the smallest decline of federal forage of all alternatives over both the short and long term because of the increased management emphasis on producing livestock forage. The forage declines projected under Livestock Production would mainly result from continuing historic trends (reflected in Current Management) that would not be reversed even when managing for livestock forage. Table 4-7 shows



the employment and income effects of the decline in forage under Livestock Production across all fee levels.

After 5 years, employment is estimated to decline by a range of 470 to 1,610 jobs (about 0.03 percent of total westwide agricultural employment under the current PRIA fee alternative 1, or 0.1 percent under regional fees and competitive bidding fee alternatives 4 and 7, respectively). Under the BLM-Forest Service proposed fee formula (fee alternative 3), the decline is estimated to amount to be between 880 and 1,010 jobs or 0.07 percent of total westwide agricultural employment<sup>5</sup>.

After 20 years, employment is estimated to decline by a range of 1,700 (PRIA fee) to 2,730 jobs (regional fees and competitive bidding). Under the BLM-Forest Service proposed fee formula, the decline would be between 2,066 and 2,180 jobs. The 20-year declines across all fee levels would be from 0.1 to 0.2 percent of total agricultural employment westwide.

Total income after 5 years is estimated to decline by a range of \$19.1 to \$61.1 million. (Under the current PRIA fee about 0.06 percent of total agricultural income westwide; under regional fees and competitive bidding about 0.2 percent.) Under the BLM-Forest Service proposed fee formula, the decline is estimated to be between \$34.2 million and \$38.9 million (about 0.1 percent) (See Figure 4-15a).

After 20 years, total income is estimated to decline by a range of \$68.5 to \$106.7 million. (Under the current PRIA fee about 0.2 percent; under regional fees and competitive bidding about 0.3 percent.) Under the BLM-Forest Service proposed fee formula, the decline is estimated to be between \$82.3 million and \$86.5 million (less than 0.3 percent of total agricultural income westwide) (See Figure 4-15a). (Table 3 in Appendix P, Changes in Employment and Income after 5 Years and 20 Years of Implementation under Different Fee Levels, contains more detailed information on employment and income impacts.)

Employment and income impacts would be smaller under the Livestock Production alternative than under any other management alternative. Further, the impacts would be slight compared to current conditions and trends in the westwide economy as a whole, and in the agriculture sector in particular. The impacts would occur in the context of an economy that has consistently grown over the past 10 years and is expected to continue growing. Thus, continued growth in employment and income in other sectors

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<sup>5</sup>The impacts for the BLM/Forest Service Proposed Fee are presented as a range between those caused by a \$4.28 fee and those caused by a \$3.72 fee. See Assumptions and Analysis Guidelines for more information.



1 would tend to offset the relatively small employment and income  
declines from reduced forage.

3 On a more local level, the impacts could be proportionately  
4 smaller or greater, but the location and intensity of impacts are

TABLE 4-7:

DECREASES IN EMPLOYMENT AND INCOME 5 AND 20 YEARS AFTER IMPLEMENTING THE  
LIVESTOCK PRODUCTION ALTERNATIVE

## FEE LEVEL:

PRIA (CURRENT)	MODIFIED PRIA	BLM-FS PROPOSED	REGIONAL	FFF	PRIA WITH SURCHARGE	COMPETITIVE BIDDING
471	874	1,005	1,606	576	880	1,606
1,697	2,062	2,182	2,727	1,792	2,068	2,727
\$19,058	\$33,961	\$38,860	\$61,142	\$22,934	\$34,211	\$ 61,142
\$68,513	\$82,034	\$86,477	\$106,692	\$72,029	\$82,260	\$106,692

difficult to estimate. In the Columbia Basin analysis area, land treatments would result in slight long-term increase in BLM forage, slightly benefiting employment and income in that area.

The impacts from reduced forage westwide, however, do not consider other factors that could mitigate the overall impacts. For example, declines in employment and income from forage reductions do not consider adjustment periods for phasing in a higher grazing fee over a 3-year period or longer. Phasing in a higher fee would reduce the short-term impacts. Nor do these impacts account for the economy's ability to absorb gradual changes in forage over time (i.e. 12 percent over 20 years) as opposed to a sudden 12 percent decline in forage in 1 year.

The short- and long-term rates of decline in employment and income under Livestock Production would be slower than the rates of decline under Current Management, but the rates of decline would not be reversed. Increased emphasis on livestock forage production would not reverse ongoing trends in agriculture or the westwide economy, except possibly in the Columbia Basin analysis area.

Overall deterioration of resource conditions, such as wildlife habitat and watersheds, would reduce wildlife-related recreation and recreation opportunities in general. This damage in turn, could lower income and employment in recreation-related economic activity. These impacts would be in addition to employment and income losses from forage reductions and higher grazing fees.

#### **RANCH INCOME AND OPERATION IMPACTS**

This section describes the impacts to ranches and ranch income resulting from changes in federal forage for livestock grazing, increases in grazing fees, and regulation changes that would potentially affect permittee operations. Impacts are described for three hypothetical herd sizes: 425 cows, 210 cows, and 90 cows. Impacts are also considered for two levels of federal forage dependency for each of these three operations: 60 percent and 30 percent. Appendix O, Changes in Ranch Returns from Reduced AUMs and Higher Grazing Fees, describes the methodology used to assess the impacts to ranch operations.

Under the Livestock Production alternative, federal forage would decrease by 3 percent after 5 years and by 12 percent over 20 years. The Livestock Production alternative would result in the lowest decline in forage of all alternatives over the short and long term because of the increased management emphasis on producing forage for livestock. The forage declines projected for Livestock Production would mainly result from continuing historic trends that would not be reversed even when managing for livestock forage. These figures are a westwide average and do

not necessarily represent the forage reductions estimated for all ranches.

Table 4-8 shows estimated losses in net cash returns (cash receipts minus expenses) to the six hypothetical operations over the short and long term as a result of reduced forage. These impacts are shown for the current PRIA fee level (\$1.86), the BLM-Forest Service proposed formula (\$3.96)<sup>6</sup>, and the weighted average regional fee level (\$6.38).

In this analysis, the impact would be greatest for a herd size of 425 cows and a 60 percent dependency on federal forage. In the short term, a 3 percent reduction in forage at the current fee level would decrease net cash returns by \$700. At \$3.96/AUM, net cash returns would decline by \$7,900 in the short term. And, at \$6.38/AUM, net cash returns would decline by \$14,000 in the short term.

In the long term, a 12 percent reduction in forage at the current fee level would decrease net cash returns by \$2,700. At \$3.96/AUM, net cash returns would decline by \$9,300 in the long term. And at \$6.38/AUM, net cash returns would decline by \$14,900 in the long term.

This ranch, with a herd size of 425 and 60 percent dependency on federal forage, is assumed to now use 3,060 AUMs of forage (425 \* 12 months \* 0.6). After 5 years, the operation would use 2,900 AUMs, and after 20 years would use 2,450 AUMs. Although the income impacts might be significant for this ranch and other ranches using a large amount of federal forage, only 8 percent of BLM permits and about 4 percent of Forest Service permits allow the use of more than 2,000 AUMs. Seventy-five percent of BLM permits and more than 50 percent of Forest Service permits allow no more than 500 AUMs.

The 90-cow operation with a 60 percent federal forage dependency described here is most closely associated with the permit size category of 500 or fewer AUMs. This operation is assumed now to have 650 AUMs (90 \* 12 months \* 0.6). The 210-cow ranch with 30 percent dependency and 760 AUMs is also representative of this permit size category.

Although the main adjustment permittees would make to reduced forage would be to decrease their herd sizes, permittees could respond in other ways: substituting other forage (leasing more private pasture), using supplemental feed (hay), increasing the

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<sup>6</sup>The analysis for the BLM/Forest Service Proposal is actually based on a \$4.28 fee. \$4.28 is the value that would be produced with a FVI of 1.08. See Assumptions and Analysis Guidelines for more information.

1 productivity of private lands (pushing ditches further up the  
) sideslopes or installing wells and center pivot sprinkler systems  
4 to increase vegetation on private property), or encouraging  
federal agencies and state game officials to install wildlife



Table 4-8: IMPACTS TO RANCH OPERATIONS UNDER THE LIVESTOCK PRODUCTION ALTERNATIVE

Alternative 3: Livestock Production	Ranch Attributes			Herd Impacts	Net Cash Returns Lost		
	Herd Size	percent Dependency on Federal Forage	percent AUM Reduction	# of Cows Lost Per Permitted Herd	Due to Smaller Herd Size <sup>1</sup>	At \$3.96/AUM <sup>2</sup>	At \$6.38/AUM <sup>3</sup>
Year 5	425	60.0	3.0	7.9	\$679	\$7,862	\$14,095
	425	30.0	3.0	4.0	344	3,936	7,052
	210	60.0	3.0	3.9	335	3,884	6,964
	210	30.0	3.0	2.0	172	1,947	3,487
	90	60.0	3.0	0.6	52	1,573	2,893
	90	30.0	3.0	0.3	26	787	1,447
Year 20	425	60.0	12.0	31.8	2,735	9,252	14,906
	425	30.0	12.0	15.9	1,367	4,625	7,453
	210	60.0	12.0	15.7	1,350	4,570	7,364
	210	30.0	12.0	7.9	679	2,289	3,686
	90	60.0	12.0	2.4	206	1,586	2,783
	90	30.0	12.0	1.2	103	793	1,392
<sup>1</sup> Net cash returns lost at current fee level. <sup>2</sup> Net cash returns lost due to herd size reductions plus increased fee (to \$4.28/AUM) on remaining federal forage. This analysis for the BLM/Forest Service Proposal of \$3.96 is based on a \$4.28 fee. \$4.28 is the value that would be produced with a FVI of 1.08 instead of an FVI of 1 as proposed. See <u>Assumptions and Analysis Guidelines</u> for more information. Therefore, the impacts presented here are overstated by 5 to 10 percent. <sup>3</sup> Net cash returns lost due to herd size reductions plus increased fee (to \$6.38/AUM) on remaining federal forage. \$6.38/AUM is the average value of the regional fees (weighted by the number of AUMs in each state charged at each fee level).							

bait stations to keep elk and deer in the uplands to reduce competition for forage. These responses would somewhat offset losses of federal forage.

Reductions in federal forage would most affect permittees that depend most on federal forage to meet their total feed requirements. Impacts of forage reductions would vary with the financial condition of the ranch. Unprofitable ranches would be further stressed by reductions in federal forage and higher grazing fees. The more profitable an operation, the better it would deal with higher fees and reduced access to federal forage.

The effects of reduced federal forage and higher grazing fees would also depend on a ranch's flexibility in finding and purchasing alternative forage sources. Ranches with the fewest alternatives and least flexibility would reduce livestock the most in response to higher fees and less forage. Even ranches that do not greatly depend on federal forage could be stressed by reductions if they cannot find affordable alternative forage.

The impacts of reduced federal forage and higher grazing fees would be somewhat lessened by phasing in grazing fee increases over a 3-year or longer period. Additionally, gradual reductions in federal forage over the long term would also allow permittees to adjust their operations. Other potential mitigating measures that would lessen impacts would be a two-tiered grazing fee system in which small family ranches might pay lower fees than larger commercial operations, or an incentive-based fee system in which permittees would be given incentives (financial or otherwise) for good stewardship. Increases in Range Betterment Funds resulting from higher grazing fees might also help mitigate losses to ranches by funding more improvements that benefit livestock. Granting permit tenure for up to 20 years might benefit permittees, encouraging them to invest in more range improvements on federal lands.

#### GRAZING FEE RECEIPT AND PAYMENT IMPACTS

Table 4-9 shows changes in grazing fee receipts under the Livestock Production alternative at all fee levels. Grazing fee receipts would decrease less under Livestock Production than under the other management alternatives because of the slower decline in federal forage.

Under all other fee levels, grazing fee receipts would increase over current conditions. Increases under Livestock Production would be greater than under the other management alternatives because of Livestock Production's slower decline in federal forage.

The federal forage fee (alternative 5) would generate the lowest increases: \$7.1 million in 5 years (23 percent) and \$3.6 in 20

1 years (12 percent). Under the current PRIA fee, receipts would  
2 decline by 3 percent over 5 years (\$923,000) and by 12 percent  
3 over 20 years (\$3.7 million). The regional fees (alternative 4)  
4 would generate the greatest increases over time: \$71.6 million in  
5 5 years (233 percent) and \$62.1 million in 20 years (202  
6 percent).

7 The BLM-Forest Service proposed fee formula (alternative 3) would  
8 generate increases between these two extremes: \$37.9 million in 5  
9 years (123 percent, more than double the current estimated level  
10 of receipts of \$30.8 million) and \$31.5 million in 20 years (102  
11 percent).

12 Table 4-9 shows the distribution of receipts to Range Betterment  
13 Funds, payments to states and counties, and revenues to the U.S.  
14 Treasury. Assuming that the distribution of grazing fee receipts  
15 would remain the same, these three categories would show the same  
16 percentage changes. Table 4-9 also shows grazing fee receipts  
17 separately for BLM and the Forest Service.

18 Also see Table 3, Livestock Production alternative, in Appendix  
19 Q, Total Grazing Fee Receipts After 5 Years and 20 Years Under  
20 Different Fee Alternatives), for total grazing fee receipts at  
21 all fee levels.

## 22 SOCIAL CONDITIONS

### 23 PERMITTEES

24 In the short term under the Livestock Production alternative, the  
25 losses in income experienced by the average permittee (with a  
26 herd size of 210 cows and a 30 percent dependency rate) would be  
27 \$172 annually at the current fee level, \$1,947 at \$3.96/AUM, and  
28 \$3,487 at \$6.38/AUM. In the long term, the losses for the same  
29 average permittee would be \$679 annually at the current fee  
30 level, \$2,289 at \$3.96/AUM, and \$3,686 at \$6.38/AUM. The size of  
31 the loss for any permittee would depend on the size of the  
32 operation, the dependency on federal forage, the amount of forage  
33 lost, and the grazing fee. The effect of the loss on any  
34 individual permittee would vary depending on the size of the  
35 loss, the financial condition of the ranch and the dependence of  
36 the ranch family on the operation.

37 Losses in ranch income could result in declines in the economic  
38 well-being of some permittees and their families. Lifestyle  
39 changes in response to the income loss could include families  
40 decreasing their spending, diversification of the operation to  
41 make it less dependent upon ranching, and sending family members  
42 to work off the ranch to bring in more income. Most permittees  
43 would try to adjust their operations to absorb income losses  
44 rather than sell their ranches because maintaining the ranching  
45 lifestyle is important to them.

1 Under Livestock Production losses in income would be less than  
2 under Current Management. Permittees would have time to adjust  
3 to the long-term declines in forage. At the higher fee levels,  
4 however, losses would be higher than permittees are now  
5 experiencing. Implementing this alternative at the current fee  
6 level should somewhat reduce the existing economic stress of  
7 trying to maintain viable ranches.



1 The attitude of the ranching community and related businesses  
2 toward the Livestock Production alternative would be positive.  
3 Livestock Production was developed as a result of public input  
4 from the ranching community. Local grazing advisory boards would  
5 play a leading role in making decisions about federal rangelands,  
6 and the permittee and agency would work closely to implement  
7 objectives. This structure would let permittees feel somewhat  
8 more in control over the management of their ranches. The  
9 greater sense of control than would result from the other  
10 alternatives would reduce social stress.

11 The ranching community values hard work and fair play. From the  
12 permittee perspective, these values are built into the philosophy  
13 of the Livestock Production alternative through an incentive  
14 program. Ranches practicing sound rangeland management would be  
15 rewarded, and ranches practicing unsound rangeland management  
16 would be penalized. For ranches practicing sound rangeland  
17 management, this system would help maintain rancher feelings of  
18 self-sufficiency, independence, and control over one's destiny.

19 Groups and individuals that are highly concerned about rangeland  
20 conditions would disagree with the adoption of this alternative.  
21 The existing stressful relationships between these groups and  
22 ranchers would continue and possibly intensify.

#### 23 COUNTRIES AND COMMUNITIES

24 Westwide in the short term under the Livestock Production  
25 alternative, 470 jobs would be lost at the current fee level;  
26 between 880 and 1,010 jobs would be lost at \$3.96/AUM; and 1,610  
27 jobs would be lost at \$6.38/AUM. In the long term under this  
28 alternative, 1,700 jobs would be lost at the current fee level,  
29 between 2,070 and 2,180 jobs at \$3.96/AUM and 2,730 jobs would be  
30 lost at \$6.38/AUM. These losses represent jobs in all sectors of  
31 the economy, in ranch employment as well as jobs that are  
32 directly and indirectly related to ranching. Fewer jobs would be  
33 lost than under Current Management, and job losses at all fee  
34 levels would be insignificant at the westwide level. Most of the  
35 projected decline in employment should be absorbed through  
36 retirements and people seeking other types of work in the normal  
37 course of their lives.

38 For some communities like the "typical small community" described  
39 in Chapter 3, the Livestock Production alternative at the current  
40 fee level represents a slowing of the ongoing population loss.  
41 The potential effects of job and population loss on local  
42 communities are described in the Social Conditions discussion of  
43 the Impacts Common to All Alternatives section at the beginning  
44 of Chapter 4.

45 Grazing fees would increase the most in areas with a high average  
46 dependency on federal grazing, such as Gunnison County, Colorado.



1 The effects of these fee increases would depend on the financial  
2 condition of local ranches and local economic conditions. In  
3 areas where there are few permittees, the community population is  
4 large and the economy is diverse, fee increases would be  
5 insignificant at the county and community levels.

6 Since permittees and other county residents would have time to  
7 adjust to the long-term declines in forage and because Livestock  
8 Production would allow more input from permittees, the social  
9 environments of communities such as Rawlins (Carbon County,  
10 Wyoming) would improve. In these areas, permittees and residents  
11 would agree with the livestock management emphasis of Livestock  
12 Production and support the increased responsibility given to  
13 advisory boards. Although the quality of recreation would  
14 decline in the long term, local recreationists and those  
15 promoting recreation as a way to diversify the local economy  
16 would favor Livestock Production because it would benefit local  
17 permittees and the community.

18 In others areas such as Gunnison County, local recreationists and  
19 environmentalists might feel that more should be done to protect  
20 recreation, riparian, and wildlife resources. These groups and  
21 individuals might feel a loss of control over public land  
22 management and thus a decline in their social well-being. In the  
23 short term, differences in opinions and values among community  
24 groups could result in less cooperation and support among groups  
25 within these communities. Continued cooperation of livestock  
26 interests with environmentalists, as demonstrated by the Gunnison  
27 County Stockgrowers' Association and the High Country Citizens'  
28 Alliance, would help maintain community cohesiveness and the  
29 social well-being of environmentalists.

### 30 NATIONAL IMPACTS

31 Impacts under the Livestock Production alternative would be  
32 similar to those under Current Management but greater in  
33 magnitude. Increasing numbers of people in the West and across  
34 the county believe that rangeland management should emphasize  
35 protecting rangeland resources rather than managing livestock.  
36 The Livestock Production alternative is inconsistent with these  
37 attitudes. People who disagree with the selection of the  
38 Livestock Production alternative might feel powerless toward and  
39 frustrated about government in general, BLM and the Forest  
40 Service, and the policymaking process.

41 Generally, recreationists and environmentalists would not support  
42 the Livestock Production alternative because of long-term  
43 declines in riparian and wildlife habitat and recreation  
44 opportunities, such as camping and fishing. The condition of  
45 these resources is important to these groups because they value  
46 these resources as potential recreation areas, and many

1 appreciate just knowing these areas exist and will continue to  
2 exist in the future.

3 Increasing numbers of people across the county, including some  
4 ranchers who are not permittees, feel that livestock grazing fees  
5 should be increased. Leaving the grazing fee at its current  
6 level is inconsistent with these attitudes.

## ALTERNATIVE 4: ENVIRONMENTAL ENHANCEMENT

### GRAZING ADMINISTRATION

#### LIVESTOCK USE LEVELS

Figure 4-16 shows potential short- and long-term levels of livestock use under the Environmental Enhancement alternative for both BLM and the Forest Service.

The trends shown in BLM and Forest Service national statistical reports (BLM 1992a; FS 1993a) and discussed for Current Management would continue under the Environmental Enhancement alternative. In the short term grazing use levels would decline by 53 percent on BLM-administered lands and by 45 percent on Forest Service-administered lands. But the long-term decline in authorized use from the current situation would amount to 30 percent for BLM-administered lands and 29 percent for Forest Service-administered lands. Short-term rates of change would differ between the two agencies because of differences in percentages of land classified as unsuitable for grazing.

Short-term declines in livestock grazing in the Columbia Basin analysis area would not be as significant as in the other areas because only 8 percent of Forest Service-administered lands would not meet or not be moving toward meeting forest plan objectives.

In the Coastal analysis area, removing livestock grazing from wilderness and areas of unknown status to meet forest plan objectives would result in 83 percent of the lands being ungrazed in the short term. As status information is obtained, some of these acres would again be returned to grazing.

#### PROGRAM EFFICIENCY AND EFFECTIVENESS

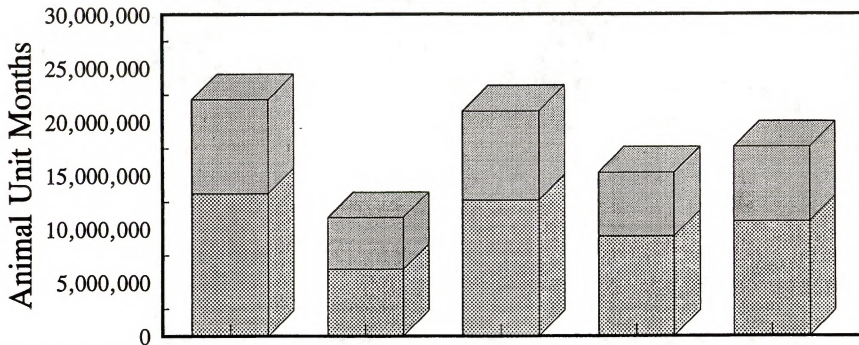
BLM's workload would increase in the short term as it develops and implements regional standards and guidelines, including regional National Environmental Policy Act (NEPA) analyses. In the long-term, however, regional standards and guidelines would help focus BLM's management direction, promote biological diversity, and improve agency efficiency in meeting management objectives.

Changes in how both agencies handle public involvement and suitability (the proposed petition process) would also increase workloads and diminish program efficiency in the short term. By encouraging more people and organizations with a wider range of perceptions and interests to become intensively involved in grazing administration, the change in the level of public involvement would greatly increase the time needed to gain consensus on annual operating plans. Needed resource management decisions would be delayed, and the possibility of appeals on

1 some decisions would increase. But more extensive and consistent  
2 public involvement would eventually help the agencies make

Figure 4-16

## Available Livestock Forage In Animal Unit Months Environmental Enhancement Alternative



	1993	EE Short Term	CM Short Term	EE Long Term	CM Long term
BLM	13,303,068	6,208,196	12,673,580	9,307,162	10,698,035
Forest Service	8,765,829	4,839,668	8,323,936	5,961,397	6,950,267
Total	22,068,897	11,047,864	20,997,516	15,268,559	17,648,302

AUMs are estimated for both the  
Forest Service and BLM



1 decisions more reflective of (and acceptable to) a wider range of  
2 public interests, and thus might reduce appeals in the long term.

3 Under the Environmental Enhancement alternative, anyone could  
4 petition the Secretary of the Interior or Secretary of  
5 Agriculture to close or open areas to livestock grazing. The  
6 workload for both agencies would increase, particularly in the  
7 short term, depending on the number of petitions submitted. With  
8 budgets not expected to change much, the requirement to process  
9 the petitions through the Secretarial level within 8 months would  
10 take staff away from other important responsibilities. But in the  
11 long term, removing livestock grazing from unsuitable areas would  
12 decrease the number of permits processed and later regulatory  
13 actions.

14 Furthermore, changes in BLM grazing regulations and policies for  
15 base property leases and livestock pasturing agreements,  
16 unauthorized use, full force and effect decisions, long-term  
17 disqualification, resource advisory boards, and range improvement  
18 ownership, would also improve BLM's efficiency and effectiveness  
19 in planning for and regulating grazing use. The Forest Service  
20 would also improve its ability to deter unauthorized use, and  
21 would reduce the number of grazing permits issued.

22 BLM would no longer need to administer base property leases  
23 (1,730 leases in 1993), which would be abolished under the  
24 Environmental Enhancement alternative. BLM and Forest Service  
25 base property administration would be consistent. Permittees  
26 would also be required to own the livestock they graze on federal  
27 land. By not having to administer livestock leases (834 in 1993),  
28 BLM employees would spend more time on other workload priorities,  
29 improving agency efficiency and effectiveness.

30 BLM and the Forest Service would also improve efficiency and  
31 reduce administrative workload by using the authority for  
32 nonmonetary settlements where unauthorized use is clearly  
33 incidental, only a slight amount of forage has been consumed, and  
34 natural resources are not affected.

35 Under the Environmental Enhancement alternative, by being able to  
36 effectively penalize violators, the Forest Service would improve  
37 its ability to control the small degree of repeated unauthorized  
38 grazing. In the long term, the Forest Service's ability to issue  
39 harsher penalties and deter repeated unauthorized use would  
40 result in an administrative workload more focused on cooperation.  
41

42 Eliminating suspended nonuse might in the short term complicate  
43 BLM's negotiating of forage reductions. A few livestock operators  
44 believe that if AUMs are given suspended nonuse status, they  
45 would have the opportunity and priority for future reactivation.

1 But in the long term, eliminating suspended nonuse would improve  
2 administrative efficiency by BLM's not having to administer the  
3 category. Forest Service regulations would not change.

4 By no longer allowing BLM decisions to automatically be stayed on  
5 appeal, the Environmental Enhancement alternative would allow  
6 most agency decisions to take effect within 75 days. A decrease  
7 in stayed agency decisions would speed up the implementing of AUM  
8 adjustments, prescribed management revisions, and other  
9 administrative changes resulting from standards and guidelines.

10 Not allowing permittees to immediately apply for a grazing permit  
11 after theirs have been canceled would help eliminate ineffective  
12 management and the need for continual adverse actions. Not  
13 allowing such permittees to hold a permit for up to 3 years might  
14 encourage better cooperation and result in improved resource  
15 management and cooperation between the agency and the permittee.  
16 Improved management would also reduce the regulatory workload  
17 associated with poor stewardship and improve the agencies'  
18 ability to implement prescribed management practices.

19 Including violations of other state and federal environmental  
20 laws in BLM's definition of prohibited acts would deter BLM  
21 permittees from violating state and federal laws and standards.  
22 Tracking state and federal violations would somewhat increase  
23 BLM's administrative workload, depending on the number of  
24 violators during the first 5 years. But whatever the number, it  
25 should decrease within the following 5 years as permittees become  
26 familiar with the regulations and understand the consequences of  
27 losing their permit for violations. The Forest Service's current  
28 regulations on violations have not been found to diminish  
29 administrative efficiency. The Environmental Enhancement  
30 alternative would make BLM and Forest Service prohibited act  
31 regulations consistent.

32 Both BLM and Forest Service workloads would decrease because the  
33 agencies would no longer need to process applications for  
34 increased sustained forage allocations. As a result, the  
35 agencies would increase their efficiency in completing other  
36 administrative duties.

37 Neither BLM nor Forest Service permittees would be assured of  
38 receiving 10-year permits. Their performance as acceptable land  
39 stewards (measured by their willingness to comply with permit  
40 stipulations and federal regulations) would help determine the  
41 length of tenure of their permits. This regulation change would  
42 strongly encourage permittees with poor performance records to  
43 cooperate and comply with federal regulations. Administrative  
44 duties would at first increase but would level out over the long  
45 term as on-the-ground management implementation improves.

1 Multiple resource advisory councils would offer a better balanced  
2 input to the decisionmaking processes of both agencies, resulting  
3 in more informed decisions. Administrative workloads would be  
4 reduced because of fewer appeals by those who perceive that the  
5 agency has not considered all pertinent information in making its  
6 decision.

7 Creating joint BLM-Forest Service multiple resource advisory  
8 councils would better enable the agencies to implement ecosystem  
9 management because of better communication between agencies and  
10 the public and a trend toward increasingly consistent  
11 regulations.

12 Federal Government title on future range improvements would make  
13 BLM's policy consistent with the Forest Service's and would at  
14 first discourage some BLM permittees from investing money on a  
15 cooperative basis in range improvement projects. But as the new  
16 policy becomes more accepted over time, long-term permittee  
17 investment should rise again, as happened to investments in  
18 Forest Service range betterment projects, where the Forest  
19 Service owns improvements.

20 Implementing ecosystem management might at first require BLM and  
21 Forest Service people to spend more time with livestock operators  
22 and other interested people and groups to coordinate policies and  
23 the processes for achieving ecosystem management. In the short  
24 term, implementing ecosystem management would increase workloads  
25 in developing agency initiatives and goals. A more holistic and  
26 interdisciplinary management approach, however, would become more  
27 efficient in the long term by equally addressing the needs of the  
28 environment and of public land users.

29 Furthermore, under the Environmental Enhancement alternative, BLM  
30 and Forest Service regulations would be consistent. This  
31 consistency, combined with greater efficiency and effectiveness  
32 resulting from implementing standard and guidelines and other  
33 changes, would help both agencies implement ecosystem management.

#### 34 **AVAILABILITY AND USE OF RANGE BETTERMENT FUNDS**

35 The Range Betterment Funds going to BLM and the Forest Service  
36 under the Environmental Enhancement alternative would depend on  
37 the grazing fee formula selected for implementation. For example,  
38 if the current grazing fee formula is kept, Range Betterment  
39 Funds would decline by 30 percent (from a 3-year average of \$15.4  
40 million per year to \$10.8 million per year) over the long term.  
41 This decrease would result from a projected decline in livestock  
42 grazing on federal lands and an accompanying decline in grazing  
43 fee receipts.

44 A 30 percent decline in Range Betterment Funds, coupled with  
45 rising range improvement costs, would generally mean that far

fewer range improvements could be built in the future. While some range improvements would no longer be necessary, many others would continue to be needed to meet livestock management and other resource objectives. Furthermore, funding would continue to be needed to rebuild existing projects.

For example, by removing livestock from areas considered unsuitable, some interior or pasture fences and water developments built to better distribute livestock might no longer be needed. But many existing fences would continue to be needed to keep livestock from lands unsuitable for grazing. More livestock control would be needed where federal and private lands are intermingled and are now fenced together. And new fences and more water development for livestock grazing on public lands would be needed to implement new grazing systems for assuring proper management of suitable areas.

Alternative sources of funding, including increased permittee contributions, agency appropriations, and contributions from other sources, would become more important just to maintain the current level of management within suitable areas. Without such funding, some existing fences and water development for livestock grazing on public lands would eventually fall into disrepair, and livestock use would become increasingly difficult to manage. Fewer allotment management plans would be implemented each year, and progress would be slowed in meeting resource objectives by changing grazing management. Riparian habitat and other resource conditions within suitable areas could be placed at risk. Eventually livestock use might have to be reduced even more than projected. A decline in funding, however, would be somewhat offset by giving the agencies more flexibility to distribute funds to priority areas and more authority to use funds to meet resource management priorities.

Range Betterment Funds would increase by 61 percent (to \$24.8 million per year) under the proposed grazing fee formula or by 140 percent (to \$36.9 million per year) under regional fees. Such large increases in the funds would more than offset the rising costs of range improvements and would generally mean that more range improvements could be built, maintained, and rebuilt. Such increased funding would be coupled with more authority to use Range Betterment Funds to meet a wider range of objectives and more flexibility to distribute those funds to priority areas.

The result of higher funding levels over the long term would be a large increase in the agencies' abilities to monitor resource conditions and to implement and rebuild needed improvements. These improvements would be aimed at achieving more resource management objectives than are now possible. The need for alternative sources of funding would correspondingly decrease.



## VEGETATION

The Environmental Enhancement alternative would focus on managing federally administered lands for sustainable ecosystems. On BLM-administered lands where ecosystems are nonfunctioning or functioning but susceptible to degradation, and Forest Service-administered lands not meeting plan objectives, livestock grazing would no longer be allowed until these areas meet plan objectives or return to proper functioning condition and are once again suitable for grazing.

Vegetation conditions such as cover, vigor, and desired species composition would improve because livestock grazing would be removed where it conflicts with other uses. Vegetation, particularly riparian, would immediately respond where livestock are removed. Most projected changes in vegetation condition would be attributable to a few key elements of the Environmental Enhancement alternative: excluding livestock from areas not in proper functioning condition; applying regional standards and guidelines, which would ensure the meeting of ecosystem management objectives, including biodiversity; increasing the nonuse of livestock forage within suitable areas; changing full force and effect provisions; expanding the representation of interests on multiple resource advisory councils; and changing the way Range Betterment Funds are allocated and used.

Applied under the Environmental Enhancement alternative more than under any other alternative, nonuse would allow a greater opportunity for ecosystem improvement and would result in greater biodiversity. Permittees would request longer periods of nonuse that would increase the acreage receiving grazing rest. The benefits of nonuse would vary depending on the length of rest from grazing.

By allowing rangeland decisions to be implemented with fewer delays, the Environmental Enhancement alternative in the short term would benefit the resources involved in the decision. Faster implementation would prevent some upland vegetation ecosystems from quickly moving into a lower successional stage that would be difficult or even impossible to reverse.

A long-term trend toward increased consideration of biodiversity would result from management decisions being influenced by a broader range of interested people and groups and from the replacement of livestock interest-dominated grazing advisory boards by multiple resource advisory councils.

Under Environmental Enhancement, interest groups would be likely to petition for more sensitive areas for nonuse status. Areas closed to grazing through the petition process would not improve as rapidly as other areas excluded from grazing since, by



1 definition, all grazed areas under this alternative would already  
2 be in proper functioning condition.

3 Allocating half of Range Betterment Funds by state priorities  
4 would lead to faster improvement of ecosystem health and  
5 biodiversity. This is the current Forest Service policy.

6 Using Range Betterment Funds for project planning and  
7 environmental analysis would speed up the implementing of  
8 projects. Using these funds for monitoring would ensure that  
9 projects are effective and would improve future planning of  
10 similar projects. And using these funds them to meet all resource  
11 management objectives on federal rangelands would allow these  
12 funds to be spent for ecosystem management rather than mainly for  
13 livestock management. Ecosystem management would place more  
14 emphasis on biodiversity, ecosystem processes, water quality,  
15 soil productivity, and wildlife habitats, and less emphasis on  
16 livestock production.

#### 17 **UPLAND**

18 In the long term, about 69,373,000 acres (95 percent) of Forest  
19 Service uplands would either be meeting objectives or moving  
20 towards objectives (an increase of 18 percent from 1993); another  
21 3,819,000 acres (5 percent) would not be meeting objectives (a  
22 decrease of 73 percent). (See Figure 4-17.)

23 In the short term, BLM uplands in proper functioning condition  
24 would increase by about 5 percent. Upland acres functioning but  
25 susceptible to degradation would decrease by about 5 percent. And  
26 upland acres in nonfunctioning condition would only slightly  
27 decrease.

28 In the long term, about 151 million acres (95 percent) of BLM  
29 uplands would be in proper functioning condition (an increase of  
30 about 65 percent). No BLM uplands would be functioning but  
31 susceptible to degradation. And about 8 million acres (5 percent)  
32 of BLM acres would be in nonfunctioning condition (a decrease of  
33 about 60 percent). (Figure 4-18 shows estimated changes to upland  
34 functioning condition.)

35 Upland vegetation condition would only slightly change in  
36 sensitive areas (wilderness, wilderness study areas, developed  
37 recreation sites, threatened and endangered species habitat, and  
38 areas of national and historic cultural significance), where  
39 livestock grazing does not now conflict with upland vegetation  
40 objectives.

#### 41 **Sagebrush**

1 Under the Environmental Enhancement alternative, vegetation  
2 diversity, condition, and trend of sagebrush communities would  
3 improve in the higher precipitation zones.

4 Removing livestock grazing from sensitive areas and revegetating  
5 portions of nonfunctioning acres with native diverse seed  
6 mixtures would benefit sagebrush communities. The percent  
7 composition of plants would resemble the late seral ecological  
8 stage in some but not necessarily all areas because lands would  
9 be managed on an ecosystem basis, and other seral stages would be  
10 needed for overall ecosystem health.

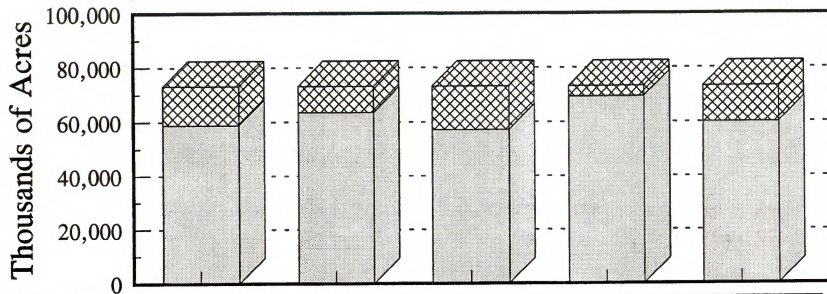
11 Sagebrush in the lower precipitation zones would not  
12 significantly improve except for nonfunctioning areas receiving  
13 vegetation treatments. These areas would be seeded with native,  
14 diverse plant species.

#### 15 Desert Shrub

16 Removing livestock from the desert shrub vegetation communities  
17 would increase plant species vigor. But overgrazed desert  
18 vegetation recovers slowly. Both direct and indirect physical  
19 impacts often change the composition of plant communities, such  
20 as a community dominated by one shrub and annual plants. Under  
21 such dominance, the plant community cannot provide biodiversity,  
22 and the time needed to improve this condition would exceed 80  
23 years. Revegetation is a slow process, which cannot be induced

Figure 4-17

# **Change in Status - Forest Service Uplands** **Environmental Enhancement Alternative**





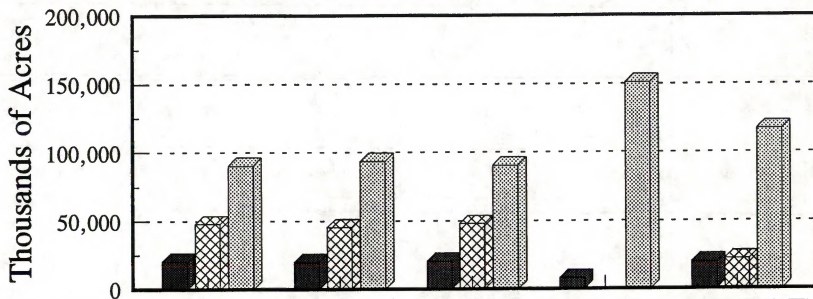



	1993	EE Short Term	CM Short Term	EE Long Term	CM Long Term
Mtg/Moving To Objectives 	58,868	63,626	57,167	69,373	59,949
Not Meeting Objectives 	14,324	9,560	16,025	3,819	13,243
Total Acres	73,192	73,186	73,192	73,192	73,192

Figure 4-18

# Changes in Functioning Condition - BLM Uplands

## Environmental Enhancement Alternative



	1993 Est.	EE Short Term	CM Short Term	EE Long Term	CM Long Term
Nonfunctioning 	20,500	20,000	20,500	8,000	20,000
Functioning at Risk 	48,000	45,500	48,000	0	22,000
Functioning 	90,500	93,500	90,500	151,000	117,000
<b>Total Acres</b>	<b>159,000</b>	<b>159,000</b>	<b>159,000</b>	<b>159,000</b>	<b>159,000</b>

1 in areas of low precipitation and high salinity. The response  
2 would therefore be slow, taking many years to achieve functioning  
3 condition.

#### 4 Southwest Shrubsteppe

5 The trend of increasing ground cover of grasses is expected to  
6 continue under the Environmental Enhancement alternative.  
7 Although the general trend would be to increase the grass cover,  
8 the response would vary depending on site characteristics and  
9 weather patterns. Sites with harsh growing conditions would not  
10 improve much in 20 to 30 years. Many sites now dominated by  
11 shrubs would continue to be dominated by them unless the shrubs  
12 are chemically or mechanically controlled. Although current  
13 management appears to have favored the grass component of the  
14 community, in some cases the shrub component may increase over  
15 the next 20 years. Shrubs appear to increase independently of  
16 grazing management if grazing is moderate (Holechek and others  
17 1989).

#### 18 Chaparral-Mountain Shrub

19 Removing livestock from a nonfunctioning mountain shrub community  
20 would increase the vigor of the areas's vegetation community. In  
21 the long term, some of the shrub community would tend toward  
22 stagnation (Holechek and others 1989), and the density of  
23 herbaceous perennials would slowly increase. The longevity of  
24 some shrubs such as Gambel oak approaches 4,000 years (West and  
25 Tueller 1972), enabling the shrub community to persist and  
26 compete on a given site. Removal of livestock alone would not end  
27 or reverse a change that such pressures had induced (Holmgren and  
28 Hutchings 1972).

29 The mountain shrub ecosystem may take a long time to recover.  
30 Within 2 to 5 years the following would increase: palatable  
31 species of grasses and forbs, height and density of existing  
32 grasses, residual vegetation matter carried over the winter, and  
33 litter and fine organic matter at the soil surface. Over the  
34 long term, seedlings and young palatable shrubs would increase.

#### 35 Pinyon-Juniper

36 Removing livestock grazing from nonfunctioning pinyon-juniper  
37 ecosystems would allow the grass and shrub component of the  
38 ecosystem to increase in vigor where the pinyon-juniper canopy is  
39 not closed. Livestock removal would also reduce the disturbance  
40 of cryptobiotic crusts.

41 Holechek and others (1989) reported that "Recovery from  
42 overgrazing is nonexistent in most areas without control of the  
43 trees." Only practices such as prescribed fire and mechanical  
44 and chemical treatment would allow biodiversity to return



(Doughty 1986). The pinyon-juniper ecosystem may take a long time to recover.

### Mountain and Plateau Grasslands

Under the Environmental Enhancement alternative, mountain grasslands would experience relatively rapid increases in native bunchgrasses, decreases in shrubs and forbs, and a decrease in the rate of spread of medusahead and similar grasses. The speed of these changes would result from this vegetation type's growing in areas with 12 inches or more annual precipitation.

### Plains Grasslands

The Environmental Enhancement alternative would remove livestock grazing from erodible landscapes where grazing is accelerating erosion and would allow livestock to return only when the ecosystems achieve functioning condition. This removal would speed up the rate of improvement in trend and ecological status. In addition, livestock would be excluded from all designated wilderness and wilderness study areas recommended as suitable for wilderness. As a result, the following vegetation traits would increase: palatable species of grasses and forbs, height and density of existing grasses, residual vegetation matter carried over the winter, and litter and fine organic material at the soil surface.

### Annual Grasslands

In the short term under Environmental Enhancement the following annual grassland vegetation traits would increase if precipitation and other climatic variables are favorable: annual grasses and forbs, residual vegetation matter carried over the winter, litter and fine organic material at the soil surface, and standing plant matter after grazing. These changes could occur relatively rapidly because annual grasslands respond annually to changes.

### Alpine Grasslands

Many alpine ecosystems would be affected directly under the Environmental Enhancement alternative because a large percentage of the alpine areas are either wilderness or wilderness study areas. Removing livestock from alpine ecosystems would increase the vigor of upland vegetation in overgrazed areas. But because of cold temperatures and short growing seasons, these ecosystems would only slowly recover from overgrazing.

### Coniferous and Deciduous Forests

The Environmental Enhancement alternative would increase the abundance, density, and vigor of palatable plants, especially

understory forbs, ferns, grasses such as fescues and bluegrasses, and shrubs such as bitterbrush and currants. Changes would be most evident in open stands of pine and less noticeable in fir and redwood types. Overall changes would strongly depend on how fire and timber are managed. Tree reproduction in rested forests would slightly increase. Seedling and sapling age classes would also increase over time.

#### **RIPARIAN/WETLAND/AQUATIC**

Riparian and upland impacts would differ because the productive potential of riparian areas would allow them to improve faster than uplands.

In the long term, 2,191,259 acres (100 percent) of Forest Service riparian areas would either be meeting objectives or moving towards objectives (an increase of 28 percent from 1993).

In the long term, 602,400 acres (about 59 percent) of BLM riparian areas would be properly functioning (an increase of 71 percent from 1993). Another 329,700 acres (32 percent) would become functioning but susceptible to degradation (a decrease of 30 percent from 1993). About 96,300 acres (9 percent) would be nonfunctioning (a decrease of 53 percent from 1993).

The Environmental Enhancement alternative would focus on managing federal lands for sustainable ecosystems. Livestock would be removed from 1.3 million acres of riparian areas of unknown condition, from BLM-administered lands whose ecosystems are nonfunctioning or functioning but susceptible to degradation, and from Forest Service-administered lands not meeting plan objectives. Livestock grazing would no longer be allowed until these areas meet plan objectives or return to proper functioning condition and are once again suitable for grazing.

With the removal of livestock from most riparian areas, riparian and wetland condition would improve rapidly and improve watershed stability. (See Figures 4-19 and 4-20.) Short-term improvements would be dramatic. Long-term improvements would benefit many other resources associated with high-quality riparian areas. Specific management would result in an overall positive trend and rapid improvement of the condition of riparian areas. Improvements would result from implementing national standards and guidelines, emphasizing ecosystem management, removing livestock from critical or unsuitable areas, and allowing more public involvement in managing rangeland resources.

The Environmental Enhancement alternative would lead to opportunities to selectively rest targeted areas to help restore native vegetation and increase residual vegetation, litter, and the accumulation of organic material. Many mountain meadows lie in designated wilderness areas. Immediately eliminating livestock

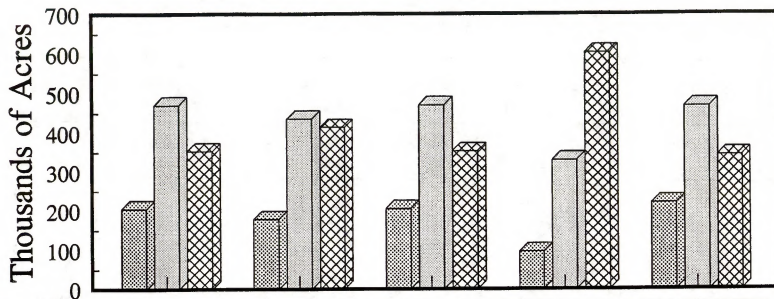
1 grazing would lead to the rapid establishment and growth of  
2 willows and other mesic shrubs. Removing livestock would  
3 dramatically improve the vertical and horizontal structure of  
4 shrubs. Plant litter would rapidly accumulate in most meadows.  
5 But in some degraded meadow systems with entrenched streams,  
6 major vegetation changes would take 50 years or more because  
7 lower water tables provide less moisture for plant growth.

8 Native sedges and other plants adapted to maintain soil stability  
9 would increase in flood-prone areas. Plants adapted to drier soil  
10 conditions and less suited to maintaining soil stability under  
11 flooding (Kentucky bluegrass, forbs, and sagebrush) would  
12 correspondingly decrease. These changes should occur relatively

Figure 4-19

# **Changes in Functioning Condition - BLM Riparian Environmental Enhancement Alternative**

2/8/94

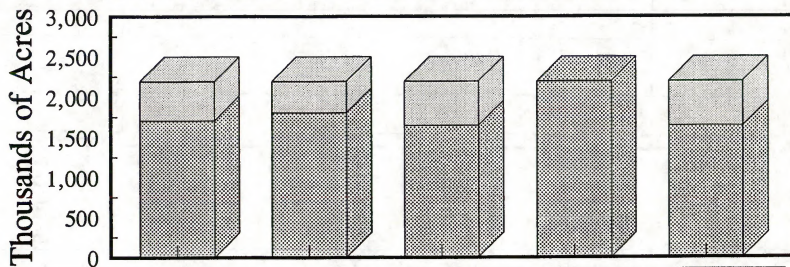


	1993 Estimated	EE Short Term	CM Short Term	EE Long Term	CM Long Term
Nonfunctioning	205.0	178.4	205.0	96.3	219.1
Functioning at Risk	470.3	435.7	470.3	329.7	466.8
Proper Functioning	353.1	414.3	353.1	602.4	342.5
Total	1,028.4	1,028.4	1,028.4	1,028.4	1,028.4

Figure 4-20

# Change in Status - Riparian Forest Service

## Environmental Enhancement Alternative

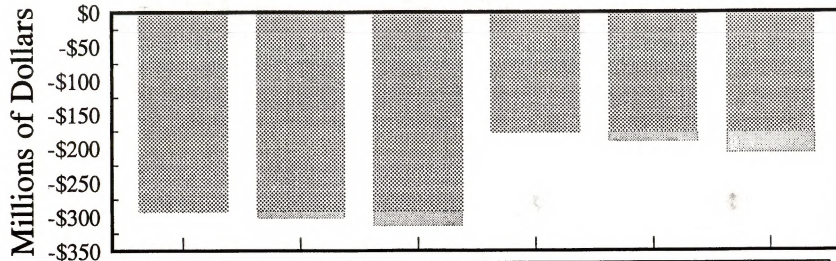


	1993 Estimated	EE Short Term	CM Short Term	EE Long Term	CM Long Term
Meeting Objectives	1,707.0	1,803.6	1,643.3	2,191.3	1,639.5
Not Meeting	484.3	387.7	548.0	0.0	551.8
Total	2,191.3	2,191.3	2,191.3	2,191.3	2,191.3



Figure 4-20a

# **Reductions in Income** **Livestock Industry** **Environmental Enhancement Alternative**



Alternative	Short Term PRIA	Short Term Proposal	Short Term Regional	Long Term PRIA	Long Term Proposal	Long Term Regional
Management Actions	-292	-292	-292	-177	-177	-177
Fee	0	-10	-22	0	-14	-30
Total	-292	-303	-314	-177	-191	-207

BLM and Forest Service Permittees Only

1 rapidly because much of this vegetation type occupies areas with  
2 high water tables and growth potential. Continued opportunity to  
3 graze would allow the long-term use of grazing as a management  
4 tool to increase meadow vigor.

#### 5 WATERSHED

##### 6 UPLAND

7 In the short term, upland watershed conditions would start to  
8 respond to management changes under the Environmental Enhancement  
9 alternative although the upland drainage system would not respond  
10 significantly. (See Figures 4-17 and 4-18.) The most noticeable  
11 changes would result from livestock being removed from areas that  
12 are functioning but susceptible to degradation, nonfunctioning,  
13 or not meeting management objectives.

14 In the long term, upland watershed conditions would significantly  
15 improve. Vegetation and litter cover would increase, and the  
16 physical properties of the soil would improve. Runoff and  
17 erosion would decrease. These changes would result partially  
18 from grazing practices, but the greatest change would result from  
19 removing livestock from areas that are not in proper functioning  
20 condition, are functioning but susceptible to degradation, or are  
21 not meeting management objectives.

22 The upland drainage network would improve significantly in the  
23 long term. Reduced grazing pressure would allow upland gullies  
24 to revegetate. Some gullies would even begin to fill with  
25 sediment. The hydrology of the uplands would reflect these  
26 changes with reductions in the size and frequency of upland  
27 floods. More rapid improvement would result under Environmental  
28 Enhancement from removing livestock from special designation  
29 areas.

30 Upland watershed conditions would improve in response to  
31 implementing national and regional standards and guidelines on  
32 BLM-administered lands and requiring standards and guidelines to  
33 be developed through Forest Service land use plans. These  
34 standards and guidelines would be incorporated into the terms of  
35 grazing permits.

36 Changes in the use of Range Betterment Funds would emphasize the  
37 proper repair or abandonment of existing watershed projects that  
38 have exceeded their useful life expectancy.

39 The sagebrush, desert shrub, and pinyon-juniper communities with  
40 less than 10 inches of annual precipitation would only slowly  
41 respond to management actions.

42 In the short term, the Environmental Enhancement alternative  
43 would not measurably affect erosion and runoff rates because at

1 least 3 years would be needed to inventory, classify, and remove  
2 livestock from all uplands deemed unsuitable for livestock  
3 grazing.

#### 4 **RIPARIAN/WETLAND/AQUATIC**

5 The overall hydrologic function of riparian-stream systems would  
6 improve under Environmental Enhancement. Lateral or vertically  
7 unstable stream channels, especially in low sediment yield or  
8 highly fluctuating flow environments, would move toward a  
9 functioning condition. The rapid trend towards proper  
10 functioning condition would mainly result from applying standards  
11 and guidelines, suspending grazing on areas not in proper  
12 functioning condition, and eliminating grazing in sensitive  
13 areas: wilderness, wilderness study areas, developed recreation  
14 sites, threatened and endangered species habitat with livestock  
15 conflicts, and areas of national and historic cultural  
16 significance.

17 Accelerated rates of runoff and sediment from uplands would  
18 progressively diminish as areas achieve proper functioning  
19 condition. Erosional stresses and sediment loading would decline  
20 in local stream channels. Coniferous forests and mountain shrub  
21 communities would achieve functioning conditions faster than  
22 ecosystems with less precipitation, such as desert shrub, pinon-  
23 juniper, and sagebrush vegetation types.

24 The condition of riparian-stream systems would also improve as a  
25 result of removing livestock from nonfunctioning riparian areas.  
26 (See Figures 4-19 and 4-20.) In the short term sediment yields  
27 from the trampling of streambanks and riparian areas would be  
28 minimized. As riparian systems approach functioning condition in  
29 the long term, these sediment effects would be negligible.  
30 Stability would be restored to presently unstable channels,  
31 partly as a result of the improved condition of riparian tree and  
32 shrub communities. These communities also regulate water  
33 temperatures and dissolved oxygen levels. Over the long term,  
34 hydrologic functions (overbank flooding, water quality  
35 maintenance, flood peak reduction, groundwater recharge, and  
36 maintenance of low flow) would progressively be restored in  
37 nonfunctioning areas.

38 In both the short and long term, nonpoint-source pollution from  
39 livestock would rapidly decrease from both upland and riparian  
40 sources. This rapid improvement in water quality would mainly  
41 result from applying the standards and guidelines, suspending  
42 grazing in areas not in proper functioning condition, and  
43 eliminating grazing in some sensitive areas: wilderness,  
44 wilderness study areas, developed recreation sites, threatened  
45 and endangered species habitat with livestock conflicts, and  
46 areas of national and historic cultural significance.

1 Managing all areas for proper functioning condition would result  
2 in upland and riparian sediment and salinity yields approaching  
3 natural levels over the long term. Other grazing pollutants--  
4 fecal bacteria and nutrient enrichment--would diminish with fewer  
5 livestock on the range and less runoff to carry pollutants to  
6 streams.

7 Nonpoint-source salinity in the Colorado River basin, being  
8 predominantly associated with runoff and sediment yields from  
9 arid-desert shrub communities, would also decline but at a slower  
10 rate because of the slow response of this vegetation type to  
11 management.

12 Under the Environmental Enhancement alternative, water quality  
13 would improve over the short term in response to implementing  
14 national standards and guidelines and other policy objectives  
15 covering ecological goals, acceptable limits, and desired plant  
16 communities for areas where livestock grazing is the main  
17 economic use. Implementing full force and effect decisions would  
18 help prevent further degrading of upland and riparian-aquatic  
19 communities threatened by livestock grazing. Range Betterment  
20 Funds would be used to help rehabilitate threatened or  
21 nonfunctioning watersheds and riparian-aquatic habitats.

22 Over the long term, watersheds, water quality, and riparian-  
23 aquatic habitats would maintain their properly functioning  
24 condition since livestock would graze only where range monitoring  
25 finds no environmental threat. BLM and the Forest Service would  
26 become better federal land managers by involving interested  
27 people and groups, using multiple resource advisory councils, and  
28 implementing decisions based on ecosystem management principles.

29  
30 Cumulative impacts under the Environmental Enhancement  
31 alternative would be similar to continuing current management in  
32 the long term. In the short term, however, significant forage  
33 reductions under Environmental Enhancement would have a greater  
34 cumulative impact than under Current Management in some areas in  
35 the West and would accelerate some ongoing trends.

#### 36 WILDLIFE

37 Improvement in upland and riparian vegetation and watershed  
38 condition would increase the amount of food and cover for many  
39 terrestrial and aquatic wildlife species. Numbers and diversity  
40 would correspondingly increase.

41 Changing the focus from "continuing grazing until monitoring  
42 shows a problem" to "authorizing grazing only where enough data  
43 shows resource condition standards and goals to be met" would  
44 rapidly improve riparian areas in the short term. (See Figures 4-  
45 19 and 4-20 and riparian analysis in the Vegetation section for  
46 the Environmental Enhancement alternative.) In the long term



such improvements to wildlife species would likely be sustained, either by not reauthorizing grazing or by limiting grazing to sustainable levels for properly functioning areas.

Under the Environmental Enhancement alternative, livestock would be removed from all currently grazed federal land that is in less than properly functioning condition (including areas whose functioning condition is unknown) until areas are found to be functioning properly. In both the short and long term, rangeland ecosystems would benefit from rest by producing more forage and cover. Riparian areas would start a rapidly improving trend. In the long term, wildlife species would benefit from having more healthy, diverse ecosystems in which to meet life needs.

The Forest Service and BLM would consider certain sensitive areas unsuitable for livestock grazing: all areas not in proper functioning condition, designated wilderness and wilderness study areas, developed recreation sites, and critical wildlife habitat areas. In addition, anyone with an interest in livestock grazing could petition the departmental secretary with jurisdiction to designate an area unsuitable for livestock grazing or to end an unsuitable classification.

In the short term, Environmental Enhancement would only negligibly to slightly improve overall upland wildlife habitat for areas rested from grazing. The slight improvement would be due to the slow response of upland habitats, especially on more arid rangelands. In the long term, the overall improvement would be slight to moderate with a potential for significant improvement in the extended future. (See Figures 4-17 and 4-18.)

Changing BLM regulations to penalize operators that violate environmental laws and regulations would give BLM more flexibility in conserving public resources. Where that flexibility is used to protect riparian or ecosystem values and functions, wildlife species would indirectly benefit.

Changing the use and distribution of Range Betterment Funds from a livestock to an ecosystem emphasis would mean that the agencies would spend funds to benefit rangeland ecosystems, which would benefit wildlife. Riparian areas would greatly benefit because grazing would be allowed only in properly functioning areas. Funds would then be spent for improving areas in less than properly functioning condition.

Increasing opportunities for the public to participate in managing rangeland ecosystems would assure that wildlife concerns and needs are discussed at all levels of decisionmaking within both agencies. With more emphasis on ecosystems and ecosystem processes, vegetation communities would improve in structure, diversity, and function. Improved riparian and upland conditions would benefit big game, upland game, waterfowl, raptors, and fish



by providing more diverse, healthy ecosystems for upland game to meet life requirements.

Changing regulations so that appealed BLM decisions would not automatically be stayed would alleviate short-term resource damage. Riparian and upland areas would benefit in the short term when corrective actions are taken to stop resource damage. If these short-term benefits lead to improved conditions in the long term, big game, upland game, waterfowl, raptors, and fish would benefit.

#### **BIG GAME**

Under the Environmental Enhancement alternative, upland vegetation types without livestock grazing would move more rapidly toward their potential natural communities. General vegetation changes would favor species in upper seral stages. For example, in areas occupied by elk and mule deer, elk would be favored where vegetation moves toward a higher percent composition of grasses. Big game populations would then move toward stability in the long term but would occupy different proportions of habitats than they do now. Species favored by these vegetation trends would include bighorn sheep and elk. Pronghorn antelope and mule deer habitat conditions would generally decline due to a shift from brushy to herbaceous vegetation. Habitat diversity would be maintained locally by land treatment projects and natural events.

The Environmental Enhancement alternative would improve the quality of riparian-dependent big game habitat and make these species better able to maintain populations. For example, mule deer depend on riparian habitat for thermal and hiding cover of both vertical and horizontal vegetation structure and seasonally prolonged succulent forage. These areas are especially important during fawn rearing. Dry and wet meadows provide valued foraging areas for bighorn sheep.

Riparian conditions would improve overall, moderately moving toward proper functioning condition. The quality of big game habitat would be improved by increases in woody vegetation in most riparian community types. Increased woody vegetation would increase the structural diversity of these areas and provide higher quality hiding and thermal cover. The movement of riparian vegetation types toward potential natural communities would also increase the amount and quality of big game forage. Meadows would have succulent forage later into the dry season, providing better quality forage for a longer time.

#### **UPLAND GAME AND NONGAME**

By removing livestock from all but properly functioning riparian areas, the Environmental Enhancement alternative would lead to

1 short-term vegetation regrowth in many areas. Keeping grazing  
2 out of those areas until they can sustain grazing without  
degradation would lead to long-term increases in plant species  
composition and structural diversity. Long-term improvements in  
5 riparian area functions would result in greater vegetation  
6 structural diversity and species composition, increased forage  
7 and cover, and greater ecosystem stability. All these  
8 improvements would benefit upland game and nongame.

9 Removing livestock grazing from sensitive areas and other parts  
10 of upland vegetation ecosystems would greatly accelerate the  
11 current upward trend for upland areas. Improving conditions in  
12 both riparian and upland areas would benefit upland and nongame  
13 by providing a more stable (diverse) ecosystem. Diverse,  
14 healthier ecosystems would contribute to the habitat and life  
15 needs of upland and nongame, as would an emphasis on managing  
16 entire watersheds for functioning characteristics.

#### 17 **WATERFOWL**

18 In the short and long term, implementing national standards and  
19 guidelines under the Environmental Enhancement alternative would  
20 improve ecological conditions. Emphasizing the principles of  
21 ecosystem management and biological diversity, these standards  
22 and guidelines would encourage the agencies to rapidly recognize  
23 and resolve threatening conditions. The relative speed of this  
24 process would lead to immediate changes in waterfowl habitat  
25 rather than the current practice that requires several years of  
monitoring data to document a nonfunctioning situation. The  
improved ecological condition of waterfowl habitat would involve  
28 reduced sedimentation from waterways, which would encourage  
29 aquatic plant growth and mean more food for waterfowl. Proper  
30 livestock management and less grazing pressure on wet meadows  
31 would improve waterfowl nesting and cover habitat. Increased  
32 plant species composition, plant vigor, residual plant cover, and  
33 functioning watersheds would improve nesting, brood rearing, and  
34 migration habitat.

#### 35 **RAPTORS**

36 Prey populations would increase as a result of the improved  
37 structural diversity of riparian vegetation, increased vegetation  
38 litter, and improved food supply. These conditions would lead to  
39 better nesting, hunting, and cover for riparian-dependent  
40 raptors. Riparian habitat improvements would also benefit  
41 riparian-dependent raptors where large cottonwood or other trees  
42 grow. Woody riparian habitat would improve relatively slowly but  
43 continually over the long term.

44 Upland habitats would improve slowly but steadily over the long  
45 term. Conditions expected under the Environmental Enhancement  
46 alternative would offer the best opportunities for achieving

proper functioning condition and for improving upland and riparian habitats for raptors. These trends would benefit raptors and their prey dependent upon upland habitats.

#### **RESIDENT AND ANADROMOUS FISH**

Since the Environmental Enhancement alternative would authorize livestock grazing only where data show that habitat condition standards and goals have been met, degraded fish habitats would immediately improve and would significantly improve over the long term. Livestock grazing would be removed at first from roughly 1.3 million riparian acres. Eliminating grazing from unsuitable areas, especially degraded riparian areas, would rapidly improve the condition of riparian vegetation.

Fisheries scientists have concluded that resting riparian/aquatic habitats is the most compatible grazing strategy for fisheries resources (Platts 1991). As streambanks and channels are rebuilt, beavers would take on a more significant role closer to their historic levels. Resulting higher water tables would reestablish some historic riparian areas. Habitats for many native resident fish would increase or improve.

Similar to the Environmental Enhancement alternative is PACFISH (which is presently under development). PACFISH would be a BLM- Forest Service ecosystem approach to managing anadromous fish habitat. As yet no decisions have been made regarding PACFISH but some options under consideration could benefit resident and anadromous fish and their habitats. PACFISH could result in positive changes in riparian/aquatic habitat conditions along at least 17,350 miles of rivers and streams in the Coastal and Columbia Basin analysis areas.

The Environmental Enhancement alternative would expand prohibited acts to other federal and state laws, including violations of water quality standards that currently protect anadromous fish. Over the long term, this change would significantly benefit aquatic habitat where, in the past, conditions of grazing permits did not require permittees to comply with water quality laws.

#### **SPECIAL STATUS SPECIES**

Under Environmental Enhancement, BLM and the Forest Service would consider certain sensitive areas unsuitable for livestock grazing: all areas not in proper functioning condition, all areas functioning but susceptible to degradation, all areas whose functioning condition is unknown, designated wilderness and BLM and Forest Service recommended wilderness, and areas where livestock grazing conflicts with designated critical habitat for federally listed species. Removing livestock from areas of grazing conflict would result in accelerated short- and long-term trends toward properly functioning ecosystems.

1 These trends would follow vegetation improvements. For example,  
2 under Environmental Enhancement large amounts of desert shrub  
3 vegetation would be ungrazed in Mojave Desert tortoise habitat,  
4 as would a smaller amount of Sonoran Desert tortoise habitat in  
5 wilderness areas. Such changes would increase forage and cover  
6 for these species.

7 In the long term, changes in nonuse would reduce the incidental  
8 damaging of special status plants and promote more forage and  
9 cover or increased growth and regeneration for palatable plants  
10 in limited areas. Conservation organizations would acquire  
11 grazing permits and apply the nonuse provision to promote the  
12 habitat traits of some upland special status species.  
13 Riparian/wetland or aquatic special status species in  
14 nonfunctioning or functioning but susceptible to degradation  
15 habitats would benefit from removing livestock grazing. The  
16 impact of nonuse would be most significant on the most productive  
17 sites, such as uplands with deeper soils in higher precipitation  
18 zones and riparian areas, which would most quickly respond to  
19 nonuse.

20 The immediate implementing of decisions that reduce grazing  
21 conflicts would benefit special status species.

22 Development of ecosystem-based multiple resource advisory  
23 councils would result in long-term trends toward improved habitat  
24 characteristics required by many special status species.

25 Trends toward plant community characteristics and ecosystem  
26 processes preferred by riparian and aquatic species would  
27 accelerate because many areas with livestock conflicts would go  
28 ungrazed. Changes toward habitat characteristics preferred by  
29 upland species would occur at a moderate rate.

#### 30 WILD HORSES AND BURROS

31 Improved upland and riparian vegetation under the Environmental  
32 Enhancement alternative would improve habitat conditions for wild  
33 horses and burros where livestock have been eliminated because of  
34 nonfunctioning or functioning but susceptible to degradation  
35 determinations.

36 The Environmental Enhancement alternative related to water rights  
37 would result in the same impacts as the Proposed Action.

38 Under the Environmental Enhancement alternative, BLM would hold  
39 title to all future range improvements. BLM would consider the  
40 normal free-roaming nature of wild horses when locating and  
41 building livestock fences and water development for livestock  
42 grazing on public lands and in conducting land treatments.  
43 Rangeland improvements would be located to benefit a variety of  
44 resource uses, including wild horses. Wild horses would continue



1 to use normal grazing use areas and dispersed water sources and  
2 would be less likely to be shut away from traditional use areas.

3 Interested individuals would become increasingly involved in  
4 managing wild horses. Determinations for managing resources would  
5 become more consistent, resulting in less litigation. The time  
6 spent for litigation would be used for implementing resource  
7 decisions.

8 Replacing grazing advisory boards, multiple resource advisory  
9 councils would have a balanced focus toward local, regional, and  
10 national issues. Increasing the consideration of wild horse needs  
11 in local resource management, these councils would strongly  
12 influence the ownership, type, location, and design of range  
13 improvement projects. As a result, wild horses and burros would  
14 benefit.

#### 15 RECREATION

16 By not allowing livestock to graze on developed recreation sites,  
17 the Environmental Enhancement alternative would eliminate the  
18 livestock impacts to facilities and users. Local improvements in  
19 water quality, especially in reduced bacteria counts, would  
20 improve site quality.

21 The development of fewer range improvements and the ability to  
22 declare more areas unsuitable for livestock grazing would  
23 increase future opportunities to develop recreation sites. The  
24 increased fencing of areas unsuitable for livestock grazing would  
25 hinder access to desirable places, but such impacts would be  
26 mitigated by design characteristics.

27 Impacts on undeveloped recreation sites would be greatly reduced  
28 by confining livestock grazing to areas in proper functioning  
29 condition. Impacts would decrease even more as more popular  
30 undeveloped areas are declared unsuitable for livestock grazing  
31 under the suitability nomination procedure. Grazing management  
32 would become more intensive and skillfully applied as permittees  
33 try to avoid conflicts and confrontation with other users.

34 The Environmental Enhancement alternative would change the scenic  
35 quality of federal lands in the West by removing livestock and  
36 range improvement projects from many areas, reducing fenceline  
37 contrasts, improving riparian areas, and reducing the number of  
38 new range improvement projects.

39 Improved riparian and aquatic conditions (see Figures 4-19 and 4-  
40 20) and increases in wildlife would allow more opportunities for  
41 recreation, including hunting and fishing, wildlife observation,  
42 and general recreation use. Improved water quality would reduce  
43 the risk of disease transmission to recreation users drinking or



having primary or secondary contact with water. Increased wildlife would increase opportunities for wildlife-related recreation in uplands.

The Environmental Enhancement alternative would also improve opportunities for guides and outfitters because of increased visitor service demands. Improved riparian and aquatic conditions would increase both the number of opportunities (longer seasons, more miles of floatable/fishable rivers and streams) and the quality of opportunities that already exist. The marketability of outfitter services would increase.

Users of single-event permits would benefit more under Environmental Enhancement than under the Current Management, Proposed Action, or Livestock Production alternatives, especially off-highway vehicle, mountain bike, horse, and other cross-country events.

#### WILDERNESS

Under Environmental Enhancement, livestock would not graze wilderness areas and wilderness study areas (WSAs) recommended for designation. Vegetation condition, especially in riparian and aquatic areas would improve. Native and special status plants and animals would also increase. Existing range improvement projects would be abandoned, removed, or both. Undesirable plants would be less likely to be introduced and established. Overall, the naturalness, solitude, and primitive and unconfined recreation values of wilderness and WSAs would improve.

#### CULTURAL AND PALEONTOLOGICAL RESOURCES

Under the Environmental Enhancement alternative, grazing impacts would be reduced or eliminated where livestock are found to be unsuitable because of nationally significant cultural resource sites.

The agencies would address Native American concerns and the concerns of the archeological and historic preservation interests and would act against grazing permittees for violating the Archeological Resource Protection Act of 1979 and the Native American Graves Protection and Repatriation Act.

Removing livestock grazing from nonfunctioning and functioning but susceptible to degradation riparian sites would eliminate grazing impacts to cultural and paleontological resources in these areas. The improving of riparian resources to proper functioning condition would reduce the effects of erosion on cultural resources. Overgrazing of native food-source plants that provide lifeway values for Native Americans would be also be eliminated. Reduced construction of range improvements would

1 lessen land disturbance and potential impacts to cultural and  
2 paleontological resources.

3 Environmental Enhancement would affect paleontological resources  
4 just as it would cultural resources.

#### 5 ECONOMIC CONDITIONS

6 The impacts under the Environmental Enhancement alternative would  
7 result from a wide variety of trends currently affecting the  
8 agricultural industry in general and livestock production in  
9 particular. The trends are discussed in Chapter 3. In addition,  
10 a variety of emerging issues might accelerate or offset ongoing  
11 trends in agriculture in the future.

12 Population growth and demographic changes in the West and in many  
13 western rural communities will continue to transform rural  
14 economies. Population growth in many rural communities, while  
15 contributing to economic growth and diversification, will  
16 continue to diminish the relative importance of agriculture in  
17 those communities. But economic diversification also offers more  
18 opportunities to earn off-ranch income and thus help families  
19 maintain their ranches. Communities that continue to lose  
20 population and whose economies are in decline might be further  
21 strained by decreases in livestock production.

22 Land use changes, such as increased recreation use and  
23 subdivision of privately owned ranch lands, are both a cause and  
24 a result of trends in the agriculture industry. Economically  
25 marginal ranches may be encouraged to sell to developers where  
26 the demand for rural homesites is increasing, resulting in a  
27 further decline in agriculture. Increased outfitter and guide  
28 activities, which encourage more recreational use of rural areas  
29 and offer more income-earning potential to ranches, may  
30 contribute to population growth and in turn accelerate changes in  
31 land use away from agricultural production.

32 Land use changes could affect community tax bases. The impact to  
33 a local economy of a change in livestock production depends on  
34 the relative size and growth trends in other sectors of that  
35 economy. Where a relatively significant livestock industry  
36 declines, tax revenues have a high probability of declining. On  
37 the other hand, where other sectors of the economy are stable or  
38 growing and a relatively small decline occurs within a large  
39 livestock industry (or a large decline occurs within a small  
40 livestock industry), major impacts to the tax base are unlikely.

41 Changes in land use may accelerate the decline in public access  
42 to public lands where access depends on crossing private lands.  
43 Reduced access may increase the demand for land adjustment (such  
44 as land exchanges or easement acquisition) by BLM and the Forest  
45 Service to obtain more access to public lands.

Policies aimed at recovery of endangered species such as desert tortoises, anadromous fish, and grey wolves, would continue to affect livestock production by restricting livestock grazing in endangered species habitat. On the other hand, future activities designed to avert habitat loss and endangered species listings may help sustain livestock production in the long term.

Eliminating the Federal Government's wool subsidy program over the next 3 years could accelerate the decline in sheep production in the West and may cause marginal sheep producers to sell their operations. Other government policies, such as trade agreements aimed at reducing international trade barriers, will also continue to affect the industry. Agreements of this kind may both increase and decrease livestock production, but the direction and magnitude of these impacts is beyond the scope of this EIS. The expiration of Conservation Reserve Program contracts beginning in 1996 might encourage the use of croplands for pasture, thereby increasing forage for livestock.

The most important direct and indirect economic effects that would result from implementing the Environmental Enhancement alternative are discussed in the following sections.

#### **REGIONAL ECONOMIC IMPACTS**

Effects on employment and income would stem from two sources: a reduction in federal forage for livestock use and an increase in grazing fees charged for the remaining federal forage. Appendix N, MicroIMPLAN System and Methodology for Estimating Impacts to Employment and Income, describes the methodology used to assess economic impacts.

Under the Environmental Enhancement alternative, overall authorized use westwide (in the 17 western states) would decline by 50 percent 5 years after implementation and by 30 percent after 20 years. For Current Management, available forage will decline by 5 percent in 5 years and 20 percent in 20 years (18 percent for BLM and 19 percent for the Forest Service). These declines are predicted on the basis of trends over the past 10 years (reflected in Current Management), which are projected to continue, and management actions that are expected to significantly reduce the federal forage grazed by livestock in the short term. In comparison to Current Management, the Environmental Enhancement Alternative would provide 45 percent fewer AUMs available in the short term (5 years) and 10 percent fewer in the long term (20 years). The Environmental Enhancement alternative would result in the greatest short-term decline in forage of all alternatives except for No Grazing. In the long term, forage would be restored, but the amount available for livestock grazing would remain 30 percent lower than at present and 10 percent lower than under Current Management and the Proposed Action after 20 years.

1 Table 4-10 shows employment and income effects of the decline in  
2 federal forage grazed by livestock under the Environmental  
3 Enhancement alternative, across all fee levels. After 5 years,  
4 employment is estimated to decline by a range of 7,240 jobs  
5 (under the current PRIA fee alternative 1) to 7,820 jobs (under  
6 regional fees and competitive bidding--fee alternatives 4 and 7,  
7 respectively). Under the BLM-Forest Service proposed fee formula  
8 (fee alternative 3), employment is estimated to decline by 7,450  
9 to 7,520 jobs<sup>7</sup>. The 5-year declines across all fee levels would  
10 amount to 0.5 percent of total westwide agricultural employment.

11 After 20 years, employment is estimated to decline by a range of  
12 4,390 jobs (under the current PRIA fee) to 5,200 jobs under  
13 regional fees and competitive bidding. Under the BLM-Forest  
14 Service proposed fee formula, employment is estimated to decline  
15 by 4,679 to 4,770 jobs. The 20-year declines across all fee  
16 levels would amount to 0.3 percent of total westwide agricultural  
17 employment.

18 Total income after 5 years is estimated to decline by a range of  
19 \$292.3 million (under the current PRIA fee) to \$314 million under  
20 regional fees and competitive bidding. Under the BLM-Forest  
21 Service proposed fee formula, income is estimated to decline by  
22 \$300.1 million to \$302.5 million. The 5-year declines in income  
23 across all fee levels would amount to about 1 percent of total  
24 westwide agricultural income (See Figure 4-20a).

25 After 20 years, total income is estimated to decline by a range  
26 of \$177.2 to \$207.1 million (under the current PRIA fee about 0.6  
27 percent of total agricultural income westwide; under regional  
28 fees and competitive bidding about 0.6 percent). Under the BLM-  
29 Forest Service proposed fee formula, the decline is estimated to  
30 amount to be between \$188 million and \$191.3 million (about 0.6  
31 percent) (See Figure 4-20a). (Table 4 in Appendix P, Change in  
32 Employment and Income After 5 Years and 20 Years of  
33 Implementation Under Different Fee Levels, contains more detailed  
34 information on employment and income impacts.)

35 Employment and income impacts would be greater under the  
36 Environmental Enhancement alternative in both the short and long  
37 term than under the other alternatives except for No Grazing. But  
38 the impacts would be minor compared to current economic  
39 conditions and trends in the westwide economy as a whole, and in  
40 the agriculture sector in particular. Continued growth in  
41 employment and income in other sectors would tend to overshadow

---

42 <sup>7</sup>The impacts for the BLM/Forest Service Proposed Fee are presented as a  
43 range between those caused by a \$4.28 fee and those caused by a \$3.72 fee. See  
44 Assumptions and Analysis Guidelines for more information.

1 the relatively small employment and income reductions from  
2 declines in federal forage grazed by livestock.

3 Locally significant impacts, however, could result. For example,  
4 in the Coastal analysis area in the short term, livestock grazing  
5 in national forests would be virtually eliminated, creating a  
6 relatively greater economic impact than in the West as a whole.  
7 Even so, the impacts would not likely be significant, since only  
8 a third of BLM- and Forest Service-administered lands there are  
9 grazed, and only 2 percent of the total federal forage grazed by  
10 livestock is in the Coastal analysis area.

11 The impacts from reduced forage do not consider other factors  
12 that could mitigate overall impacts. For example, estimates of  
13 employment and income declines do not consider a 3-year or longer  
14 adjustment period for phasing in a higher grazing fee. Phasing in  
15 higher fees would reduce the short-term impacts.



1      TABLE 4-10:

THE ENVIRONMENTAL IMPACT STATEMENT  
DECREASES IN EMPLOYMENT AND INCOME  
AT TIME 5 AND 20 YEARS AFTER IMPLEMENTING

FEE LEVEL:							
	PRIA (CURRENT)	MODIFIED PRIA	BLM-FS PROPOSED	REGIONAL	FFF	PRIA WITH SURCHARGE	COMPETITIVE BIDDING
2      DECREASED EMPLOYMENT							
3      AFTER 5 YEARS:	7,239	7,447	7,515	7,824	7,293	7,450	7,824
4      AFTER 20 YEARS:	4,388	4,674	4,768	5,195	4,463	4,679	5,195
5      DECREASED INCOME (1993 \$):							
6      AFTER 5 YEARS (\$000):	\$292,331	\$300,013	\$302,538	\$314,024	\$294,329	\$300,142	\$314,024
7      AFTER 20 YEARS (\$000):	\$177,196	\$187,797	\$191,282	\$207,132	\$179,953	\$187,975	\$207,132

Under the Environmental Enhancement alternative, improved resource conditions in the long term would create beneficial impacts greater than under all other alternatives except for No Grazing. Greatly improved wildlife habitat and recreation site improvements would generate increases in employment and income with increased opportunities to hunt, fish, and view wildlife. These impacts would result both from changes in resource management and increases in Range Betterment Funds from higher grazing fees. But because fewer livestock could graze under Environmental Enhancement than under Current Management, the Proposed Action, or Livestock Production, the Environmental Enhancement alternative would generate relatively fewer Range Betterment Funds.

#### RANCH INCOME AND OPERATION IMPACTS

This section describes the impacts to ranch operations and ranch income of changes in forage allowed for livestock grazing, increases in grazing fees, and regulation changes that would potentially affect operations. Impacts are shown for three hypothetical herd sizes: 425 cows, 210 cows, and 90 cows. Impacts are also considered for two levels of federal forage dependency for each of these three operations: 60 percent and 30 percent. Appendix O, Changes in Ranch Returns from Reduced AUMs and Higher Grazing Fees, describes the methodology used to assess the impacts to ranch operations.

One impact common to all alternatives is that herd sizes would decrease as access to federal forage declines. (The extent of decreases would vary by alternative, depending on the reduction in federal forage). Further, all else being equal, net cash returns (cash receipts minus expenses) would decrease as herd sizes decrease.

Under the Environmental Enhancement alternative, authorized use would decrease by 50 percent after 5 years and by 30 percent over 20 years, the greatest short-term decline in forage under all alternatives except No Grazing. In the long term, livestock grazing would be restored but would remain 30 percent lower than under current conditions and 10 percent lower than under Current Management after 20 years. These figures are a westwide average and do not necessarily represent the forage reductions projected for all ranches.

Table 4-11 shows estimated losses in net cash returns to the six hypothetical operations over the short and long term as a result of reduced federal forage. These impacts are shown for the current PRIA fee level (\$1.86), the BLM-Forest Service proposed

1 formula (\$3.96)<sup>8</sup>, and the weighted average regional fee level  
2 (\$6.38).

3 In this analysis, the impacts would be greatest for a herd size  
4 of 425 cows and a 60 percent dependency on federal forage. In  
5 the short term, a 50 percent reduction in forage at the current  
6 fee level would decrease net cash returns by \$11,400. At  
7 \$3.96/AUM, net cash returns would decline by \$15,100 in the short  
8 term. And at \$6.38/AUM, net cash returns would decline by  
9 \$13,300 in the short term.

10 In the long term, federal forage would increase but remain at 30  
11 percent below current levels. A 30 percent reduction in forage  
12 at the current fee level would decrease net cash returns (cash  
13 receipts minus expenses) by about \$6,800. At \$3.96/AUM, net cash  
14 returns would decline by \$12,000 in the long term. And, at  
15 \$6.38/AUM, net cash returns would decline by \$16,500 in the long  
16 term.

---

17 <sup>8</sup>The analysis for the BLM/Forest Service Proposal is actually based on a  
18 \$4.28 fee. \$4.28 is the value that would be produced with a FVI of 1.08. See  
19 Assumptions and Analysis Guidelines for more information.

Table 4-11: IMPACTS TO RANCH OPERATIONS UNDER THE ENVIRONMENTAL ENHANCEMENT ALTERNATIVE

Alternative 4: Environmental Enhancement	Ranch Attributes			Herd Impacts	Net Cash Returns Lost		
	Herd Size	Percent Dependency on Federal Forage	Percent Reduction In AUMs	# of Cows Lost Per Permitted Herd	Due to Smaller Herd Size <sup>1</sup>	At \$3.96/AUM <sup>2</sup>	At \$6.38/AUM <sup>3</sup>
Year 5	425	60.0	50.0	132.6	\$11,404	\$15,107	\$18,320
	425	30.0	50.0	66.3	5,702	7,553	9,160
	210	60.0	50.0	65.5	5,633	7,463	9,050
	210	30.0	50.0	32.8	2,821	3,736	4,530
	90	60.0	50.0	10.0	860	1,644	2,324
	90	30.0	50.0	5.0	430	822	1,162
Year 20	425	60.0	30.0	79.6	6,846	12,030	16,528
	425	30.0	30.0	39.8	3,423	6,015	8,264
	210	60.0	30.0	39.3	3,380	5,941	8,164
	210	30.0	30.0	19.7	1,694	2,975	4,086
	90	60.0	30.0	11.2	963	2,061	3,013
	90	30.0	30.0	5.6	482	1,031	1,507
<sup>1</sup> Net cash returns lost at current fee level. <sup>2</sup> Net cash returns lost due to herd size reductions plus increased fee (to \$4.28/AUM) on remaining federal forage. This analysis for the BLM/Forest Service Proposal of \$3.96 is based on a \$4.28 fee. \$4.28 is the value that would be produced with a FVI of 1.08 instead of an FVI of 1 as proposed. See <u>Assumptions and Analysis Guidelines</u> for more information. Therefore, the impacts presented here are overstated by 5 to 10 percent. <sup>3</sup> Net cash returns lost due to herd size reductions plus increased fee (to \$6.38/AUM) on remaining federal forage. \$6.38/AUM is the average value of the regional fees (weighted by the number of AUMs in each state charged at each fee level).							

1 This operation, with a herd size of 425 and 60 percent dependency  
2 on federal forage, is assumed now to use 3,060 AUMs ( $425 * 12$   
3 months \* 0.6). After 5 years, the operation would use 2,900  
4 AUMs, and would use 2,450 AUMs after 20 years. While the income  
5 impacts might be significant for this operation and other  
6 operations with a large number of federal AUMs, only 8 percent of  
7 BLM permits and 4 percent of Forest Service permits allow more  
8 than 2,000 AUMs. Seventy-five percent of BLM permits and more  
9 than 50 percent of Forest Service permits allow no more than 500  
10 AUMs.

11 The 90-cow operation with a 60 percent federal forage dependency  
12 described here is most closely associated with the permit size  
13 category of 500 or fewer AUMs. This operation is assumed now to  
14 have about 650 AUMs ( $90 * 12$  months \* 0.6). The 210-cow operation  
15 with 30 percent dependency and 760 AUMs is also representative of  
16 this permit-size category.

17 While the main adjustment permittees make to reduced forage would  
18 be to decrease their herd sizes, they could respond in other  
19 ways: substituting other forage (leasing more private pasture),  
20 using supplemental feed (hay), increasing the productivity of  
21 private lands (pushing ditches further up the sideslopes or  
22 installing wells and center pivot sprinkler systems to increase  
23 vegetation on private property), encouraging federal agencies and  
24 state game officials to install wildlife bait stations to keep  
25 elk and deer in the uplands to reduce competition for forage.  
These responses would somewhat offset losses of federal forage.

27 Reductions in federal forage would have the greatest impact on  
28 permittees most highly dependent on federal forage to meet their  
29 total feed requirements. The impact of the reductions would vary  
30 with the financial condition of the ranch. Unprofitable ranches  
31 would be further stressed by reductions in federal forage and  
32 higher grazing fees. The more profitable a ranch, the better it  
33 would deal with higher fees and reduced access to federal forage.

34 The effect of reduced federal forage and higher grazing fees  
35 would also depend on a ranch's flexibility in finding and  
36 purchasing alternative forage sources. Ranches with the fewest  
37 alternatives and least flexibility would reduce the number of  
38 livestock the most in response to higher fees and less forage.  
39 Even ranches that do not highly depend on federal forage would be  
40 stressed by reductions if they cannot find suitable and  
41 affordable alternative forage.

42 Several proposed regulation changes under the Environmental  
43 Enhancement alternative might also affect ranch operations.  
44 Permittees are most likely to be affected by eliminating  
45 subleasing on BLM allotments, allowing appealed decisions to be  
46 placed in full force and effect, allowing conservation use, and  
47 changing permit tenure. Eliminating subleasing would reduce the



profitability of operations where sublessees pay a higher rate than the current PRIA fee level. Placing decisions into full force and effect might reduce ranch income by limiting livestock production. Allowing conservation use for up to 10 years at the permittee's request would benefit an operation and might increase forage in the long term.

Granting permit tenure for up to 10 years on the basis of performance would harm only permittees who lose their current 10-year permit tenure due to nonperformance. Losing tenure might slightly hurt a permittee's credit standing.

Under the Environmental Enhancement alternative, the public can petition to close areas to livestock grazing. Eliminating livestock grazing in such areas would reduce ranch income, depending on the level of livestock grazing affected, the permittee's dependence on federal forage, and the permittee's ability to obtain alternative forage.

The impacts of reduced federal forage, higher grazing fees, and regulation changes would be somewhat lessened by phasing in an increase in grazing fees over a 3-year or longer period. Additionally, where forage is gradually reduced, permittees could adjust their operations. Other potential measures that would lessen impacts would be a two-tiered grazing fee system under which small family ranches might pay lower fees than larger commercial ranches or an incentive-based fee system under which permittees would be given financial or other incentives for good stewardship practices. Increases in Range Betterment Funds resulting from higher grazing fees under several fee alternatives may also help mitigate losses to ranches by funding more improvements that benefit livestock.

#### GRAZING FEE RECEIPT AND PAYMENT IMPACTS

Table 4-12 shows changes in grazing fee receipts under the Environmental Enhancement alternative at all fee levels. For several scenarios, grazing fee receipts would decline from current conditions. Under the current PRIA fee and the federal forage fee (alternatives 1 and 5 respectively), receipts would decline both after 5 and 20 years. Under the modified PRIA fee (fee alternative 2), receipts would decline in the short term (5 years).

Under alternative 6, PRIA with surcharges, grazing fee receipts in the short term would remain unchanged from current conditions. This lack of change would result from two assumptions that would cancel each other out: 1) that the surcharge would double the current fee from \$1.86 to \$3.72; and 2) that in the short term forage would decline to half the current level. Over the long term, receipts would increase by \$12.3 million (40 percent).

Under the current PRIA fee, receipts would decline by 50 percent over 5 years (\$15.4 million) and by 30 percent over 20 years (\$9.2 million). Under the federal forage fee (alternative 5), receipts would decline by \$11.2 million (37 percent) over 5 years and by \$3.4 million over 20 years (11 percent). Under the modified PRIA fee (alternative 2), receipts would decline slightly in the short run by \$246,000 (0.8 percent) but increase in the long term by \$12 million (39 percent).

Under the other fee levels, grazing fee receipts would increase over current conditions. The regional fees (alternative 4) would generate the greatest increases: \$22 million in 5 years (71 percent) and \$43.1 million in 20 years (140 percent). The BLM-Forest Service proposed fee formula (alternative 3) would generate \$4.6 million in 5 years (15 percent) and \$18.8 million in 20 years (61 percent).

Table 4-12 shows the distribution of receipts to Range Betterment Funds, payments to states and counties, and revenues to the U.S. Treasury. Assuming that the distribution of grazing fee receipts remains the same, these three categories would change by the same percentage. Table 4-12 also shows grazing fee receipts for both BLM and the Forest Service.

Also see Table 4, Environmental Enhancement alternative, in Appendix Q, Total Grazing Fee Receipts after 5 Years and 20 Years under Different Fee Alternatives, for total grazing fee receipts under all fee levels.

## SOCIAL CONDITIONS

### PERMITTEES

In the short term under the Environmental Enhancement alternative, the income losses experienced by the average permittee (with a herd size of 210 cows and a 30 percent dependency rate) would be \$2,821 annually at the current fee level; \$3,736 at \$3.96/AUM; and \$4,530 at \$6.38/AUM. In the long term, the losses for the same average permittee would be \$1,694 annually at the current fee level, \$2,975 at \$3.96/AUM, and \$4,086 at \$6.38/AUM. Some permittees would have greater losses than the average. Others would have smaller losses.

The size of the loss for any permittee would depend on the size of the operation, the dependency on federal forage, the amount of forage lost, and the grazing fee. The effect of the loss on any individual permittee would vary, depending on the size of the loss, the financial condition of the operation, and the dependence of the ranch family on the operation.

1     Insert Table 4-12.

1 Losses in ranch income would result in declines in the economic  
2 well-being of some permittees and their families. Lifestyle  
3 changes in response to the income loss would include families  
4 decreasing their spending, diversifying operations to make them  
5 less dependent upon ranching, or sending family members to work  
6 off the ranch to bring in more income. Economically marginal  
7 ranches may be encouraged to sell, either to other ranchers or to  
8 developers in regions where demand for rural homesites is  
9 increasing. Most permittees would try to adjust their operations  
10 to absorb the income losses rather than sell their ranches  
11 because maintaining the ranching lifestyle is important to them.  
12 But under the Environmental Enhancement alternative, particularly  
13 at the higher fee levels, some ranches could no longer stay in  
14 business.

15 Under Environmental Enhancement at all fee levels, losses in  
16 income would be greater than under the Proposed Action,  
17 particularly in the short term. Changes in regulations might  
18 make permittees move their cattle more often and maintain more  
19 fencing. Rancher concerns about this alternative would include  
20 reductions in forage, the broadened representation on advisory  
21 boards and councils, BLM ownership of all future range  
22 improvements, surcharges for subleasing, and losses in permit  
23 value reducing the value of ranches. A large fee increase would  
24 intensify the effects of Environmental Enhancement because  
25 permittees with higher dependencies on federal forage would be  
26 paying higher fees for much smaller herds.

27 Social impacts to permittees, ranching families, and ranch  
28 employees could be far reaching and could have serious social  
29 consequences if the Environmental Enhancement alternative is  
30 selected. Personal characteristics of self-sufficiency,  
31 independence, hard work, and other traits associated with the  
32 ranching lifestyle would be deeply shaken for many permittees.  
33 The social consequences discussed in the Impacts Common to All  
34 Alternatives section at the beginning of Chapter 4 would be  
35 accelerated under Environmental Enhancement.

36 For many residents of the ranching community, the Environmental  
37 Enhancement alternative, particularly at higher fee levels, would  
38 intensify feelings of mistrust and loss of personal control over  
39 their lifestyle. This resulting negative attitude toward BLM,  
40 the Forest Service, and the Federal Government in general, would  
41 make it harder for the agencies to work with permittees.  
42 Interactions with other public landusers would continue to be  
43 stressful for the ranching community under this alternative.

44 Some permittees would close off access to their base property and  
45 any access they control to public land to exert some control over  
46 their land. Some permittees might simply refuse to pay the  
47 higher fees or to follow the new regulations.  
48

1 In the long term, some permittees might prefer managing from this  
2 ecological perspective and working closely with government  
3 agencies and other interested publics. If rangeland conditions  
4 improve as predicted and livestock grazing allotment numbers and  
5 use likewise increase, the expected long-term result would be  
6 that the current rancher distrust and anger toward government  
7 agencies and others would subside.

## 8 COUNTRIES AND COMMUNITIES

9 Westwide in the short term under the Environmental Enhancement  
10 alternative, 7,240 jobs would be lost at the current fee level,  
11 between 7,450 and 7,520 jobs would be lost at \$3.96/AUM, and  
12 7,820 jobs would be lost at \$6.38/AUM. In the long term, 4,390  
13 jobs would be lost at the current fee level, between 4,680 and  
14 4,770 jobs would be lost at \$3.96/AUM, and 5,200 jobs would be  
15 lost at \$6.38/AUM. These losses represent jobs in all sectors of  
16 the economy--ranch employment as well as jobs that directly and  
17 indirectly relate to ranching. These job losses would be much  
18 higher than under the Proposed Action, especially in the short  
19 term. Job losses at all fee levels would be insignificant at the  
20 westwide level. Some projected declines in employment would be  
21 absorbed through retirements and people seeking other types of  
22 work in the normal course of their lives.  
23 The effects of the Environmental Enhancement alternative could  
24 include the outmigration of some permittee families whose  
25 operations or businesses could not support them. Families  
26 dependent upon local businesses, particularly agricultural supply  
27 and retail stores, could also be affected. The level of  
28 outmigration would depend on the financial condition of the  
29 permittees, their job skills, and local employment opportunities.  
30 The effects of this alternative would be similar to but much more  
31 severe than those under the Proposed Action.

32 "Typical small communities" (as described in Chapter 3) are most  
33 likely to be affected under this alternative because they are now  
34 losing population and have a lower capacity to respond to change.  
35 In other areas, such as Gunnison County, Colorado, population  
36 declines from permittee family outmigration might be offset by  
37 people moving into the area as part of the rural development  
38 trend. New people might have different attitudes and values than  
39 the people leaving the area and would probably place less  
40 importance on the traditional values of ranching families. The  
41 potential effects of job and population losses on local  
42 communities are described in the Impacts Common to All  
43 Alternatives section at the beginning of Chapter 4.

44 Grazing fee increases would be highest in areas with a high  
45 average dependency on federal grazing, such as Gunnison County.  
46 The effects of these fee increases would depend on the financial  
47 condition of local ranches and local economic conditions. In  
48 areas where there are few permittees, the community population is



large and the economy is diverse, fee increases would be insignificant at the county and community levels.

In some communities such as Rawlins, Wyoming, residents believe that ranching is an important part of their community and lifestyle. Residents would be highly concerned about the change in emphasis away from livestock management and would strongly resent any alternative that greatly reduced livestock grazing on public lands. Environmental Enhancement would improve recreation quality, but local recreationists and those promoting recreation as a way to diversify the local economy would probably not favor this alternative because of its potential to harm permittees and the community.

Residents would tend to attribute any sale of a permittee's operation to changes in livestock grazing on public lands, even if the sale resulted from other factors. Residents and permittees would probably also feel increased resentment and distrust toward the Federal Government and federal agencies because of reduced local control over the management of public lands. Such feelings would make future cooperation between many local people and BLM and the Forest Service extremely difficult, even in the long term.

Where rural areas are being developed, ranchers and some newcomers are concerned that Rangeland Reform '94 will accelerate the urbanization process.

Where the population is more diverse, such as Gunnison, Colorado, Environmental Enhancement would probably appeal to newcomers, people interested in tourism, and environmental and recreation groups. But recreationists and environmentalists who fear loss of recreation access and open space due to development might be reluctant to support Environmental Enhancement. In the short term, differences in opinions and values among community groups could result in less cooperation and support among groups within these communities.

#### **NATIONAL IMPACTS**

Increasing numbers of people in the West and across the country believe that rangeland management should emphasize protecting rangeland resources rather than managing livestock. Most people also support agricultural use of the land. Some people may feel that Environmental Enhancement offers a good balance of protecting riparian and wildlife resources while allowing livestock grazing to continue on federal lands. Others may feel that this alternative too heavily restricts livestock grazing. People who favor this alternative would feel satisfied about government in general, BLM and the Forest Service, and the policymaking process.

1 Some recreationists and many environmentalists would believe that  
2 the Environmental Enhancement alternative offers a proper balance  
3 between livestock grazing and protecting wildlife and riparian  
4 areas. The condition of these resources is important to these  
5 groups because they value them as potential recreation areas and  
6 many appreciate just knowing that these areas exist and will  
7 continue to exist in the future. Others, however, feel that this  
8 alternative restricts livestock grazing too much. Still others  
9 might feel that the alternative does not restrict livestock  
10 grazing enough. Generally people living close to the affected  
11 communities would support the livestock industry more than those  
12 living further away.

13 Increasing numbers of people across the country, including some  
14 ranchers who are not permittees, feel that livestock grazing fees  
15 should be increased. Raising grazing fees would be consistent  
16 with these attitudes.

1                                   **ALTERNATIVE 5: NO GRAZING**

2                   **GRAZING ADMINISTRATION**

3                   **LIVESTOCK USE LEVELS**

4           Under the No Grazing alternative, livestock would not graze BLM-  
5           and Forest Service-administered lands except where temporary  
6           grazing is needed in vegetation treatments to meet resource  
7           objectives. BLM and the Forest Service would have few grazing-  
8           related responsibilities. Grazing fees would no longer contribute  
9           to the U.S. Treasury, and livestock management work in both  
10          agencies would decline.

11         BLM and Forest Service would better control grazing. Without  
12         other livestock management responsibilities, both agencies would  
13         spend more time and money monitoring and resolving unauthorized  
14         use. During the short term, unauthorized use would probably  
15         increase. But as neighboring livestock operators become familiar  
16         with no grazing policies and boundary fences are built, the  
17         increase should level off.

18         BLM and Forest Service permittees would salvage range  
19         improvements not directly benefitting wildlife, watershed, or  
20         recreation. The agencies would pay permittees for the current  
21         value of their investments in range improvements. In the short  
22         term, this endeavor would be expensive.

23                   **AVAILABILITY AND USE OF RANGE BETTERMENT FUNDS**

24         If livestock grazing is eliminated on federal lands, grazing fee  
25         receipts and the Range Betterment Funds would fall to zero. Loss  
26         of Range Betterment Funds would mean no money for building,  
27         maintaining, or rebuilding range improvements other than from  
28         agency appropriations or private contributions. Although the  
29         need for many range improvements would be diminished or  
30         eliminated, many other range improvements would continue to be  
31         needed to help meet resource management objectives.

32         For example, interior or pasture fences generally would no longer  
33         be needed, but many boundary fences would continue to be needed  
34         to exclude livestock from federal lands. Other fences would also  
35         be needed where federal and private lands are highly intermingled  
36         and are now fenced together. Water developments built to better  
37         distribute livestock would also no longer be needed. If harmful  
38         to wildlife, these developments would be removed. Otherwise they  
39         would remain for wildlife use.

40         Loss of the Range Betterment Fund would be offset somewhat if the  
41         agencies can convert appropriated funds now spent on livestock  
42         grazing to other uses. But other sources of funding, including  
43         agency appropriations and private contributions, would become

1 more important just to maintain a proper level of management. In  
2 local situations, riparian habitat and other resource conditions  
3 could be placed at risk, and enforcement costs would also likely  
4 rise.

5 In addition, loss of the Range Betterment Funds could also  
6 translate into foregone or delayed opportunities to increase  
7 resource monitoring and implement new rangeland projects aimed at  
8 improving ecosystem health: noxious weed control, prescribed  
9 burning, and similar activities for restoring degraded or  
10 nonfunctioning ecosystems.

## 11 VEGETATION

### 12 UPLAND

13 In the long term under No Grazing, 69,373,000 acres (95 percent)  
14 of Forest Service uplands would either be meeting objectives or  
15 moving towards objectives (an increase of 18 percent); another  
16 3,819,000 acres (5 percent) would not be meeting objectives (a  
17 decrease of 73 percent) (Figure 4-21).

18 In the short term, BLM upland acres in proper functioning  
19 condition would increase by about 5 percent, upland acres  
20 functioning but susceptible to degradation would decrease by  
21 about 5 percent, and upland acres in nonfunctioning condition  
22 would only slightly decrease.

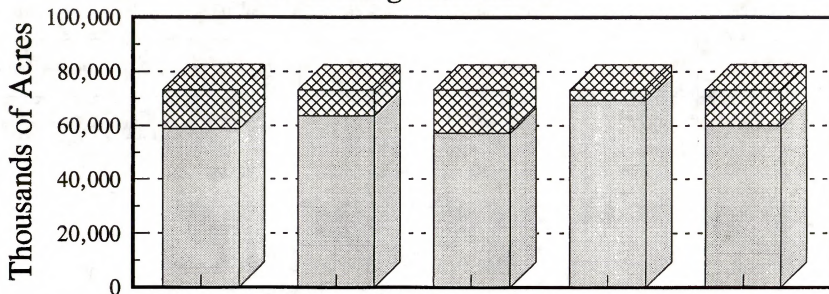
23 In the long term, about 151 million (95 percent) of BLM upland  
24 acres would be in proper functioning condition (an increase of  
25 about 65 percent), no BLM upland acres would be functioning but  
26 susceptible to degradation, and about 8 million (5 percent) BLM  
27 upland acres would be in nonfunctioning condition (a decrease of  
28 about 60 percent). (Figure 4-22 shows the estimated changes to  
29 upland functioning condition.)

30 The No Grazing alternative would affect upland vegetation the  
31 same as would the Environmental Enhancement alternative for  
32 nonfunctioning areas, areas functioning but susceptible to  
33 degradation, and areas not meeting management objectives.  
34 Removing livestock from federal lands would immediately benefit  
35 upland vegetation where conflicts exist with livestock grazing.  
36 To the extent that livestock grazing would inhibit or prevent  
37 reaching the desired ecological condition, permanent livestock  
38 removal would result in better ecosystem health. No Grazing  
39 would also have undesirable long-term effects in some upland  
40 vegetation zones, especially those that evolved under the grazing  
41 pressure of large native herbivores.

Figure 4-21

# Change in Status - Forest Service Uplands

## No Grazing Alternative





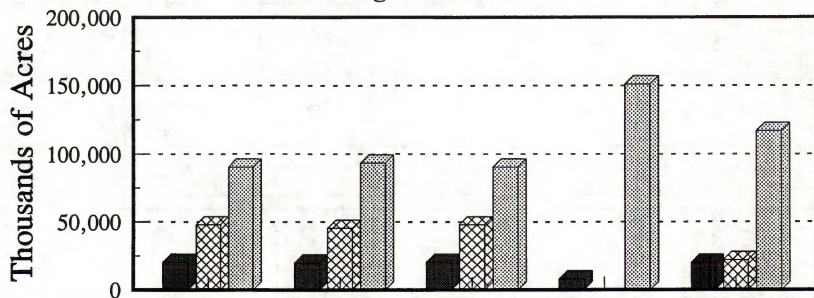
	1993	NG Short Term	CM Short Term	NG Long Term	CM Long Term
Mitg/Moving To Objectives 	58,868	63,626	57,167	69,373	59,949
Not Meeting Objectives 	14,324	9,560	16,025	3,819	13,243
Total Acres	73,192	73,186	73,192	73,192	73,192






Figure 4-22

# Changes in Functioning Condition - BLM Uplands

No Grazing Alternative



	1993 Est.	NG Short Term	CM Short Term	NG Long Term	CM Long Term
Nonfunctioning 	20,500	20,000	20,500	8,000	20,000
Functioning at Risk 	48,000	45,500	48,000	0	22,000
Functioning 	90,500	93,500	90,500	151,000	117,000
Total Acres	159,000	159,000	159,000	159,000	159,000

1      Insert Figure 4-22.

1 Some vegetation zones would not immediately or dramatically  
2 improve where fire or climate influences upland vegetation more  
3 than livestock. No Grazing would result in little or no change  
4 in upland vegetation conditions in shrub- or pinyon-juniper-  
5 dominated areas. To significantly change, these areas would need  
6 a catalyst to disrupt the dominance of woody plants. More  
7 herbaceous vegetation resulting in more standing litter would  
8 increase the potential for wildfire, which might become that  
9 catalyst.

#### 10 Sagebrush

11 No Grazing would improve grass cover, soil cover, water  
12 infiltration rates, and plant vigor and reproduction, as climate  
13 and soil potential allow. Communities dominated by woody shrubs  
14 would not significantly improve until woody plants were reduced  
15 by such means as fire, mechanical treatment, or even livestock.  
16 The percent composition of plants would resemble the late seral  
17 stage in some but not all areas, because vegetation communities  
18 representing all seral stages are needed to maintain  
19 biodiversity.

20 In areas having less than 10 inches of annual precipitation  
21 sagebrush communities would not significantly improve in 20 years  
22 except for nonfunctioning areas whose vegetation is being  
23 treated. To support the goals and objectives of biodiversity and  
24 ecosystem health, these areas would be seeded with native,  
25 diverse plants that normally grow in these areas. Without  
26 treatment, trend in the lower precipitation areas would not  
27 significantly change over the long term.

#### 28 Desert Shrub

29 In desert shrub vegetation communities livestock removal would  
30 improve vegetation, soil cover, water infiltration rates, and  
31 plant vigor and reproduction to the extent that climate and soil  
32 potential would allow. Desert shrub ecosystems in the drier,  
33 hotter areas would increase in grass cover because the climate  
34 typically favors grass-dominated rangelands. An increase in  
35 grass versus shrubs in these areas depends on seasonal and annual  
36 weather variations, regardless of livestock grazing. Where  
37 shrubs have become dominant, typically from improper livestock  
38 grazing or lack of fire, grass cover would increase slowly or  
39 not at all unless the shrubs are controlled mechanically or by  
40 fire. Revegetation is a slow process that cannot be induced in  
41 areas of low precipitation and high salinity.

#### 42 Southwest Shrubsteppe

43 Eliminating livestock grazing would continue the trend of  
44 increasing grass cover. As a whole, the shrubsteppe ranges of  
45 southern New Mexico and southeast Arizona have been improving in

condition since the 1950s drought. The improved condition has consisted mainly of increased grass cover, a result of favorable rainfall and proper livestock management. Although the general trend would be increased grass cover, the response would vary, depending on site characteristics and weather patterns. Sites with harsh growing conditions would not improve much in 20 to 30 years. Without chemical or mechanical control, many sites now dominated by shrubs would continue to be dominated by shrubs (Holechek and others 1989).

#### Chaparral-Mountain Shrub

No Grazing would result in short-term increases in palatable grasses and forbs, grass height and density, vegetative and seed reproduction, residual vegetation carried over winter, structural complexity of vegetation, litter and fine organic material at the soil surface, and plant material in the ecosystem as litter and decaying organic material.

A lack of grazing pressure would also cause a rapid short-term increase in understory plants. Bare soil would decrease. Over the long term palatable shrub seedlings and young plants would increase, but the long-term response would depend upon the effect of timber and fire management practices in keeping shrub communities from becoming old and decadent.

#### Pinyon-Juniper

Removing livestock from pinyon-juniper ecosystems would allow the grass and shrub component of the ecosystem to increase in vigor where the pinyon-juniper canopy is not closed. Livestock removal would also reduce soil disturbance to cryptobiotic crusts. Only practices such as prescribed fire and mechanical and chemical treatment, however, would allow biodiversity to return (Doughty 1986), and the pinyon-juniper ecosystem might take a long time to recover.

#### Mountain and Plateau Grasslands

Most mountain grassland plant species would rapidly increase in response to a lack of grazing pressure. Bare soil would decrease. The vegetation's structural complexity would increase, as would the plant material in the ecosystem as litter and decaying organic material. Seed and vegetative plant reproduction would increase in the short term. The long-term response would depend on the presence of wildlife and fire to stimulate vegetation succession.

#### Plains Grasslands

Their evolution heavily influenced by the grazing of bison, grassland ecosystems would undergo major changes under No

1 Grazing. In the short term, prairie grasses would respond with  
2 improved vigor where vigor is low. Where ecological status is at  
3 or beyond the mid-seral stage, exclusion of grazing would first  
4 result in accumulation of dead material making the grasslands  
5 highly susceptible to fire. In the long term, the vigor of  
6 grassland species would decline. Frequency of burning would be  
7 the main factor influencing vigor and ecological status.

#### 8 Annual Grasslands

9 In the short term, annuals would rapidly increase in response to  
10 livestock removal. The vegetation's structural complexity would  
11 increase, as would the amount of plant material in the ecosystem  
12 as litter and decaying organic matter. Plant reproduction would  
13 increase in the short term. The long-term response would depend  
14 on how well wildlife and fire would replicate the role of  
15 livestock in the maintaining annual grasslands.

#### 16 Alpine Grasslands

17 Removing livestock from alpine ecosystems would increase the  
18 vigor of upland vegetation in overgrazed areas. But these  
19 ecosystems would only slowly recover from overgrazing because of  
20 cold temperatures and short growing seasons.

#### 21 Coniferous and Deciduous Forests

22 In the short term understory plants in coniferous and deciduous  
23 forests would rapidly increase in response to a lack of grazing  
24 pressure. Bare soil would decrease. The vegetation's structural  
25 complexity would increase, as would the plant material in the  
26 ecosystem as litter and decaying organic material. In the short  
27 term, seed and vegetative plant reproduction would increase. The  
28 long-term response would depend on other influences, most notably  
29 fire and timber harvesting.

#### 30 RIPARIAN/WETLAND/AQUATIC

31 In the long term under No Grazing, 2,191,259 acres (100 percent)  
32 of Forest Service riparian areas would either be meeting  
33 objectives or moving towards objectives (an increase of 28  
34 percent from 1993) and 672,900 acres (about 65 percent) of BLM  
35 riparian areas would be properly functioning (an increase of 91  
36 percent from 1993). Another 289,900 acres (28 percent) would  
37 become functioning but susceptible to degradation (a decrease of  
38 38 percent from 1993), and 65,600 acres (6 percent) would be  
39 nonfunctioning (a decrease of 68 percent from 1993).

40 No Grazing would affect 3.2 million acres of riparian areas,  
41 resulting in rapid restoration of watershed stability and proper  
42 functioning riparian resources. (See Figures 4-23 and 4-24.)

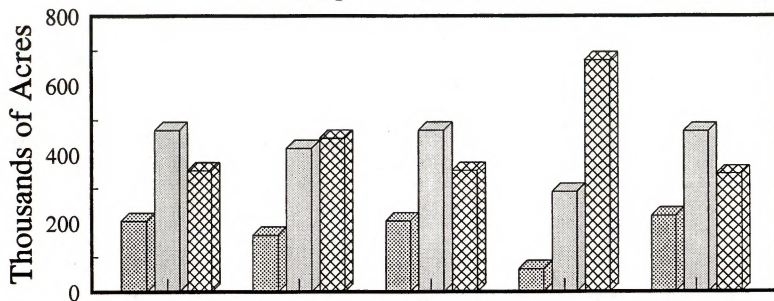


Figure 4-23

# Changes in Functioning Condition - BLM Riparian

No Grazing Alternative

2/8/94

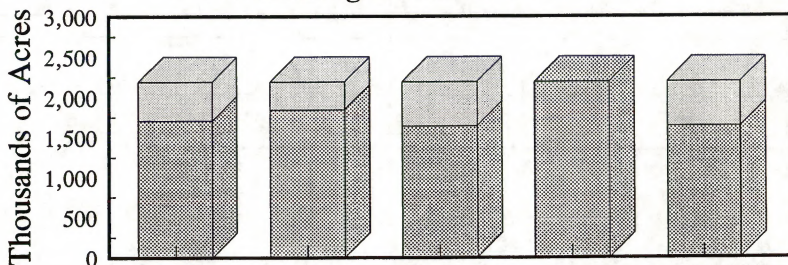




	1993 Estimated	NG Short Term	CM Short Term	NG Long Term	CM Long Term
Nonfunctioning	205.0	164.0	205.0	65.6	219.1
Functioning at Risk	470.3	417.2	470.3	289.9	466.8
Proper Functioning	353.1	447.2	353.1	672.9	342.5
Total	1,028.4	1,028.4	1,028.4	1,028.4	1,028.4

Figure 4-24

## Change in Status - Riparian Forest Service

No Grazing Alternative



	1993 Estimated	NG Short Term	CM Short Term	NG Long Term	CM Long Term
Meeting Objectives 	1,707.0	1,848.6	1,643.3	2,191.3	1,639.5
Not Meeting 	484.3	342.7	548.0	0.0	551.8
Total	2,191.3	2,191.3	2,191.3	2,191.3	2,191.3

1 Insert Table 4-24

In the short term, meadow plant vigor would rapidly increase in response to livestock removal. The amount of bare soil would decrease. Structural complexity of the vegetation would increase, and the amount of plant material in the ecosystem as litter and decaying organic material would increase. Water infiltration rates would increase in response to increased root production by more vigorous grasses and the increasing density of grasses. Livestock removal should also result in decreased soil compaction and thus increased water infiltration rates.

Vegetation and seed plant reproduction would increase in the short term. The additional litter and standing plant matter would help stabilize the system, be incorporated into the meadow soil-building process, and lead to more increases in water storage capacity and plant growth and reproduction. Vigor and reproduction might decline in the long term (perhaps after 10 to 20 years, depending upon climate, water table availability, presence of other ungulates, and current conditions) due to a buildup of vegetation residue preventing sunlight from reaching the lower portions of the plants.

In addition, No Grazing would allow for some riparian-wetland resources historically lost to be restored where a potential for recovery still exists. A large increase in riparian-wetland acreage would be expected in the long term as these areas recover and historic wetted areas are rehydrated.

The No Grazing alternative would approach ecosystem management in the same way as would Current Management and the Proposed Action. In some areas, eliminating livestock grazing would benefit reestablished proper functioning riparian ecosystems. Many methods of vegetation manipulation would be used (except livestock grazing) to maintain vegetation productivity and ecosystem health. Management actions would result in the rapid restoration of watershed stability, restoration of riparian areas to proper functioning condition, and strong improvement in biodiversity.

#### WATERSHED

##### UPLAND

In the short term, until all livestock are removed, vegetation and litter cover would only moderately increase with some improvement in the physical properties of the soil. This change would slightly reduce runoff and erosion rates. Climatic variation would be the dominant short-term agent of change.

In the long term, plant and litter would considerably increase cover, which in turn would improve physical soil properties. Where grazing greatly affects soil, the increase in vegetation and litter cover would greatly reduce the amount of runoff and

erosion within an ecosystem. See Figures 4-21 and 4-22 for short- and long-term changes in upland and riparian conditions.

The upland drainage network would improve considerably, with many areas eventually returning to swalelike conditions as gullies revegetate and fill with sediment. The hydrologic response would be a reduction in the size and frequency of floods originating in the uplands.

The desert shrub, pinyon-juniper, and sagebrush communities with less than 10 inches of annual precipitation would respond more slowly to management actions than would other communities.

#### **RIPARIAN/WETLAND/AQUATIC**

The hydrologic function of essentially all grazed riparian-stream systems would move toward or maintain proper functioning condition. The trend towards proper functioning condition would accelerate faster than under all other alternatives after the 3-year phaseout period when all livestock would be removed from federal lands.

After the 3-year livestock phaseout, the direct disturbance from livestock grazing on riparian areas would end. But the hydrologic damage associated with overgrazed riparian areas would take many years beyond the 3-year phaseout to heal. Some of the slowest riparian-stream systems to achieve proper functioning condition would be lateral or vertically unstable stream channels, especially with low sediment yields or highly fluctuating flows. The 3-year phaseout of livestock grazing would allow limited short-term improvements in riparian areas. Loss of Range Betterment Funds would reduce the agencies' abilities to restore habitats, but the investments would not be essential given the relative speed of natural riparian/aquatic recovery in the absence of livestock grazing.

Over the long term, most riparian-stream systems would achieve properly functioning condition where overbank flooding, water quality maintenance, flood peak reduction, groundwater recharge, and maintenance of low flow would progressively be restored to nonfunctioning riparian areas. (See Figures 4-23 and 4-24.)

Nonpoint-source pollution from livestock would sharply decrease in the short term and would be eliminated in the long term. Some accelerated sediment and salinity yields would remain beyond the long term in slowly recovering watersheds, such as those in the arid and semiarid Colorado River basin. Fecal bacteria and nutrient enrichment would diminish to natural levels within the short term.

#### **WILDLIFE**



1 The upward trend in ecological status under No Grazing would be  
2 accompanied by an increase in food, cover, and wildlife  
3 populations from late seral stages. Species from early seral  
4 stages would experience correspondingly adverse impacts.

5 Decreased streambank erosion and improved watershed conditions  
6 would result in less sediment and turbidity and more aquatic  
7 macroinvertebrate production and plant growth providing more food  
8 for fish and wildlife.

9 In riparian areas, immediate short-term improvements in  
10 vegetation structure and condition would benefit wildlife. As  
11 more riparian areas improve in structure, function, and plant  
12 diversity, more forage and cover would allow wildlife populations  
13 to expand until competition for riparian resources again limits  
14 wildlife numbers. No Grazing would have the same effects on  
15 riparian wildlife as would the Environmental Enhancement  
16 alternative, with the same concurrent benefits of improved upland  
17 habitats.

#### 18 **BIG GAME**

19 To maintain biological diversity and natural functioning  
20 conditions, the agencies would have to use management tools such  
21 as fire and possibly grazing to mimic historic natural  
22 conditions. Without such tools, some vegetation communities  
23 would grow beyond optimal conditions for many wildlife species,  
24 offsetting expected benefits. Big game species associated with  
25 vegetation types in low- to mid-seral stages would be  
26 significantly harmed by the natural loss of desirable habitat.  
27 Fire, mechanical treatments, and livestock would help maintain  
28 biodiversity.

#### 29 **UPLAND GAME AND NONGAME**

30 The continued developing and implementing of policies for  
31 managing rangelands as ecosystems would help improve upland  
32 wildlife habitats. With no livestock grazing except where found  
33 to be needed to meet management objectives, increased residual  
34 vegetation would improve natural vegetation diversity, structure,  
35 and ecological condition in uplands. This increased residual  
36 vegetation, carried through the winter as food and cover, would  
37 increase the numbers and improve the health of associated  
38 wildlife. Over the long term, upland wildlife numbers would  
39 greatly increase.

#### 40 **WATERFOWL**

41 Improved riparian condition would improve nesting waterfowl  
42 habitat, nesting success, and the quality of migration and  
43 wintering habitat on lands administered by both agencies.  
44 Expected waterfowl population increases would also depend on what

happens on other waterfowl habitat segments next to federally administered lands. If these areas are more heavily grazed by livestock than before, overall waterfowl population increases might be limited.

#### **RAPTORS**

Under No Grazing, increases in vegetation biomass, structural diversity, litter, and food supply for prey species would improve habitat conditions for raptors. Riparian-wetlands would improve most rapidly. Some raptors might decline in response to reductions in prey species that prefer earlier seral stages. Upland vegetation would improve somewhat slower depending on rainfall and soil productivity.

#### **RESIDENT AND ANADROMOUS FISH**

Removing livestock from riparian areas would quickly improve riparian vegetation habitats. As streambanks and channels are rebuilt, beaver would take on a more significant ecological role. Rising water tables would greatly expand riparian conditions beyond the acreage on which they occur today. Fisheries habitat would increase or improve. Most aquatic habitats would have upward trends. Of all alternatives, No Grazing would best protect anadromous fisheries habitats from the harm of livestock grazing. About 75 percent of degraded rangeland anadromous fish habitat would be restored over the long term.

Fisheries scientists have concluded that resting riparian/aquatic habitats is the most compatible grazing strategy for fisheries resources (Platts 1991). Over time, anadromous fish populations would stabilized or even increase, but only if other serious problems can be resolved: overfishing, migration route blockage, increased predation on young fish, competition with nonnative fish, combined effects of interbreeding with hatchery fish, and increased isolation and fragmentation of suitable spawning habitats.

#### **SPECIAL STATUS SPECIES**

With vegetation changes and increased cover, forage, plant growth, and regeneration, No Grazing would result in short- and long-term trends toward the recovery of many sensitive and listed species. Except from wildlife and wild horses and burros, direct impacts such as trampling and grazing would cease. In addition to benefits from reduction of direct take of species, populations would have increased vigor, which should parallel improvement in ecological condition.

No Grazing would result in an accelerated move toward plant community characteristics and ecosystem processes preferred by riparian and aquatic species. Since most special status species

1 are riparian dependent for some part of their ecology, as  
2 riparian and aquatic ecosystems improve, special status species  
3 populations should increase accordingly. Change toward habitat  
4 characteristics preferred by upland species would proceed at a  
5 moderate rate, paralleling improvements in upland vegetation.

6 In the very long term, removing livestock from vegetation that  
7 developed under large-ungulate grazing, such as in the plains and  
8 mountain and plateau grasslands, could cause natural ecosystem  
9 processes to stagnate. In such cases, some large-ungulate grazing  
10 may be required to maintain these processes. Although species  
11 may continue to be listed in the future, no special status  
12 species are likely to be federally listed in the long term as a  
13 result of ongoing grazing impacts.

14 Range improvements needed for the maintenance, restoration, and  
15 recovery of special status species would be maintained. The loss  
16 of Range Betterment Funds used for restoring special status  
17 species habitat would continue the downward trend toward habitat  
18 loss for some species in local areas, but this impact would not  
19 be significant nationally.

#### 20 WILD HORSES AND BURROS

21 Improved upland and riparian vegetation would improve habitat  
22 conditions for wild horses and burros where they compete with  
23 livestock.

24 The No Grazing alternative would remove range improvements that  
25 block wild horse and burro movement or migration. The loss of  
26 range improvements critical to wild horses and burros would harm  
27 these animals in the short term until BLM and the Forest Service  
28 develop budget and management processes for building improvements  
29 to meet horse and burro needs. Publicly owned water developments  
30 and fences in herd management areas would be built to protect  
31 riparian and other sensitive areas.

#### 32 RECREATION

33 The No Grazing alternative would affect developed recreation  
34 sites much as would the Environmental Enhancement alternative.  
35 But No Grazing would offer the greatest opportunities for  
36 developing new facilities by eliminating livestock-recreation  
37 conflicts.

38 No Grazing would also improve conditions in undeveloped  
39 recreation sites, quickly ridding preferred sites of livestock  
40 disturbances. Removing unneeded range improvements, especially  
41 fences, would take longer in backcountry or remote areas. In the  
42 long term, however, undeveloped sites would less deteriorate  
43 because of decreased erosion, increased vegetation cover, and no  
44 livestock trampling. All undeveloped sites would be protected

from authorized livestock grazing in upland and riparian settings as compared to few sites that are now protected.

Eliminating grazing and range projects would improve riparian and upland scenic quality in the short and long term. (See Figures 4-21, 4-22, 4-23, and 4-24.) Within a relatively short period (depending on the response or recovery of local vegetation), plant communities would establish a more natural appearance, and fenceline contrasts would become largely unnoticeable. The most obvious long- and short-term improvement in scenic quality would result from eliminating grazing facilities that do not enhance other resources. The long-term result would be scenic quality markedly different from existing conditions.

Under No Grazing, motorized and nonmotorized users would enjoy relatively unimpeded movement across public lands. But access in well-vegetated areas like willow-lined riparian zones would become more difficult as plant communities respond to the removal of livestock. Moreover, No Grazing would not improve access to public lands since crossing private land would become more difficult because of shifts in attitudes of some landowners.

Having somewhat differing expectations from nonmotorized users, motorized users would enjoy federal lands more than would nonmotorized users. Removing interior fences would increase freedom of movement and hence the quality of the user experience.

Improved conditions for fish and wildlife would mean higher quality wildlife-related recreation. Improved riparian conditions would extend seasons and increase the number and quality of opportunities for water contact such as swimming. Improved water quality would also reduce health risks for these users.

Guides and outfitters would benefit more from No Grazing than from any other alternative. Recreation services would become more marketable as resource and user conditions improve, opening more opportunities for recreation users. More boundary fences, however, would restrict freedom of movement. Improved riparian and aquatic conditions particularly would increase opportunities (longer seasons, more miles of usable streams) and the quality of existing opportunities. This trend would start by the end of the short term and continue through the long term. Removing livestock and range management facilities would reduce planning conflicts and impediments to special events.

#### WILDERNESS

No Grazing would affect wilderness values much as would the Environmental Enhancement alternative except that No Grazing would remove livestock from almost 7 million more acres of wilderness study areas not recommended for designation. All wilderness values on these areas would improve.



## CULTURAL AND PALEONTOLOGICAL RESOURCES

The No Grazing alternative would eliminate damage to cultural resources from livestock trampling. But historic properties of the western ranching lifeway would not be maintained, would deteriorate, and would be lost in the long term. Traditional ranching lifeway values would slowly disappear.

Compared to Current Management, No Grazing would increase effects on cultural resources in the short term but decrease them in the long term by removing cattle, sheep, and range management facilities.

## ECONOMIC CONDITIONS

No Grazing might accelerate ongoing trends in the agricultural industry in the West and trends in many rural western communities. (These trends are discussed in Chapter 3.) The extent of the impacts would depend on how dependent communities are on livestock production on federally-administered lands and alternatives open to livestock operators. About 22 percent of beef cattle producers in the 11 western states would be affected and about 19 percent of the sheep producers. The ability of these producers to maintain their operations would greatly vary. Many producers completely depend on federal forage; others have low dependency. The following narrative describes ongoing trends and emerging issues that may further affect the ability of livestock operators to obtain suitable alternatives to federal forage.

Population growth and demographic changes in the West and in many western rural communities will continue to transform rural economies. Population growth in many rural communities, while contributing to economic growth and diversification, will continue to diminish the relative importance of agriculture in those communities. But economic diversification also offers more opportunities to earn off-ranch income and help families maintain their ranches. Communities that continue to lose population and whose economies are in decline may be further strained under the No Grazing alternative.

Land use changes, such as increased recreation use and subdivision of privately owned ranchlands, are both a cause and a result of trends in agriculture. Economically marginal ranches may be encouraged to sell to developers where rural homesites are in increasing demand, resulting in further decline in agriculture. Increased outfitter and guide activities, which encourage more recreational use of rural areas and offer more income-earning potential to ranch operations, may contribute to population growth and may in turn accelerate changes in land use away from agriculture.



Land use changes could affect community tax bases. The impact to a local economy of a change in livestock production depends on the relative size and growth trends in other sectors of that economy. Where a relatively significant livestock industry declines, tax revenues have a high probability of declining. On the other hand, where other sectors of the economy are stable or growing and a relatively small decline occurs within a large livestock industry (or a large decline occurs within a small livestock industry), major impacts to the tax base are unlikely.

Changes in land use may accelerate the decline in public access to public lands where access depends on crossing private lands. Reduced access may increase the demand for land adjustment (such as land exchanges or easement acquisition) by BLM and the Forest Service to obtain more access to public lands.

Policies aimed at recovery of endangered species, such as desert tortoises, anadromous fish, and grey wolves, would continue to affect livestock production on private lands where livestock operators receive federal funding (for conservation programs administered by the U.S. Department of Agriculture, for example). But future activities designed to avert habitat loss and endangered species listings may help sustain livestock production in the long term.

Eliminating the Federal Government's wool subsidy program over the next 3 years could accelerate the decline in sheep production in the West and may cause marginal sheep producers to sell their operations. Other government policies, such as trade agreements aimed at reducing international trade barriers, will also continue to affect the industry. Agreements of this kind may both increase and decrease livestock production, but the direction and magnitude of these impacts is beyond the scope of this EIS. The expiring of Conservation Reserve Program contracts beginning in 1996 might encourage the use of croplands for pasture, thereby increasing forage for livestock.

The most important direct and indirect economic effects that will result from implementing No Grazing are discussed in the following sections.

#### **REGIONAL ECONOMIC IMPACTS**

Under No Grazing, livestock grazing would be phased out on public lands over a 3-year period, thus reducing federal forage for livestock grazing to near zero. Under this alternative, employment and income impacts would result only from eliminating forage, not from raising grazing fees.

The No Grazing alternative would cause an estimated reduction of about 1.2 million cattle and about 817,000 sheep nationwide. This estimate assumes a 25 percent average feed dependency for cattle

operations and a 35 percent average feed dependency for sheep operations (see Table 4-13).

The 1.2 million cattle coming off federal land represent about 2 percent of the estimated range-cattle inventory in the lower 48 states, about 4 percent in the 16 western states, and about 9 percent in the 11 western states. (See Appendix R, U.S. Cattle Inventory for Range Cattle Inventory Estimates by State.) The 817,000 sheep represent about 8 percent of the sheep inventory in the lower 48 states, 13 percent in the 16 western states, and 16 percent in the 11 western states.

The cattle and sheep coming off federal lands would go to market or would be moved to other areas or regions. Several alternative forage sources exist (Acreage Reduction Program acres and other farm program acres during allowable periods) or could potentially exist (Conservation Reserve Program acres when they come out from under contract, beginning in 1996) in other regions.

Assuming complete implementation of No Grazing, employment would decline by 18,300 jobs in agriculture and related industries. This amount represents about 1 percent of the total 1990 agricultural employment of 1.5 million. Although the decline in employment would be felt mainly in agriculture, total job losses would be spread throughout many sectors of the economy. In that context, employment losses would represent less than 0.1 percent of total westwide employment.

Total income would decrease by \$737.1 million in agriculture and related industries. This loss represents 2.4 percent of total agricultural income westwide and 0.5 percent of total income in all sectors westwide (Forest Service 1993g). In relation to gross receipts for cattle and sheep of \$24.4 billion in 1990 (Strickland, Johnson, and Williams 1991), the loss in total income represents about 3.3 percent.

Economic impacts under No Grazing would be greater than under any other alternative. Because No Grazing would be phased in over 3 years, impacts to employment and income would be greatest in the short term.

As under the other alternatives, employment and income impacts would be minor relative to the total westwide (17 western states) economy. In the agriculture industry, impacts would be relatively greater. But in the long term, continued growth of employment and income in other industries would tend to offset the employment and income reductions resulting from eliminating livestock grazing on federal lands.

Local economies could be significantly affected, depending on several factors: the amount of public land in the region, the

Table 4-13: METHOD FOR ESTIMATING REDUCTIONS IN CATTLE AND SHEEP INVENTORY UNDER THE NO GRAZING ALTERNATIVE

Total # of federal AUMs:	16,340,000 <sup>1</sup>
# of cattle AUMs (88 percent): <sup>2</sup>	14,379,200
# of sheep AUMs (12 percent): <sup>2</sup>	1,960,800
Average dependency: <sup>3</sup>	25 percent
Cattle operators:	35 percent
Sheep operators:	

**CATTLE: ESTIMATED REDUCTION**

total federal and nonfederal AUMs needed to support cattle currently grazing on public lands

$$\frac{14,379,000 \text{ AUMs}}{0.25 \text{ dependency}} = 57,516,000 = \text{AUMs}$$

number of cattle supported by 57.6 million AUMs (also represents number of cattle that spend, on average, 25 percent of their time on public land)

$$\frac{57,516,000 \text{ AUMs}}{12 \text{ months}} = 4,793,000 = \text{cattle}$$

$$4,793,000 \times 0.25 = 1,198,000 = \text{cattle}$$

estimated number of cattle eliminated under No Grazing alternative

**SHEEP: ESTIMATED REDUCTION**

total federal and nonfederal AUMs needed to support sheep now grazing on public lands

$$\frac{1,961,000 \text{ AUMs}}{0.35 \text{ dependency}} = 5,603,000 = \text{AUMs}$$

Number of sheep supported by 5.6 million AUMs (also represents number of sheep that spend, on average, 35 percent of their time on public land)

$$\frac{5,603,000 \text{ AUMs}}{12 \text{ months}} = 2,333,000 = \text{sheep}$$

$$2,333,000 \times 0.35 = 816,550 = \text{sheep}$$

estimated number of sheep eliminated under No Grazing alternative

<sup>1</sup> See Appendix J, 3-Yr Average AUMs Authorized

<sup>2</sup> Source: Forest Service 1993a; BLM 1993d

<sup>3</sup> See Table 3-17, Dependency Levels for Permitted Herds in 13 Western States.

1 dependency on federal forage in the region, the size of  
2 operations, and operator responses to eliminating livestock  
3 grazing. Areas relatively more dependent on federal forage, such  
4 as in the Desert Southwest with an average 60 percent dependency,  
5 would be more affected. Where dependency on federal forage is  
6 lower, such as in Montana where the average dependency is 11  
7 percent, impacts would not be as significant.

8 The effect of No Grazing on red-meat prices would be slight. In  
9 the near term, selling off sheep and cattle herds would lower  
10 prices as more livestock are slaughtered. But a 1 percent  
11 decrease in the national cattle inventory would result in about a  
12 1 percent increase in retail beef prices after the near-term  
13 effects worked themselves through. The current increase in the  
14 national cattle inventory (an expected 1 percent in 1993) would  
15 depress cattle prices. Thus, the general increase in the  
16 national cattle inventory would offset the effect of livestock  
17 liquidation.

18 Under No Grazing, improved resource conditions in the long term  
19 would create economic benefits that would offset some of the  
20 declines in employment and income. These offsetting impacts  
21 would be greater under No Grazing than under any other  
22 alternative. Greatly improved wildlife and fisheries habitat and  
23 recreation site improvements would increase employment and income  
24 as hunting, fishing, and wildlife viewing opportunities increase.

#### 25 RANCH INCOME AND OPERATION IMPACTS

26 This section describes the impacts to ranch operations and ranch  
27 income resulting from elimination of livestock grazing on BLM-  
28 and Forest Service-administered lands. Impacts are described for  
29 three hypothetical herd sizes: 425 cows, 210 cows, and 90 cows.  
30 Impacts are also considered for two levels of federal forage  
31 dependency for each of these three operations: 60 percent and 30  
32 percent. Appendix O, Changes in Ranch Returns from Reduced AUMs  
33 and Higher Grazing Fees, describes the methodology used to assess  
34 the impacts to ranch operations.

35 Under No Grazing, the supply of federal forage would decrease by  
36 100 percent after a phase-in period. Two variables influencing  
37 how ranches losing BLM-Forest Service forage would be affected  
38 are dependency on this federal forage and herd size. Table 4-14  
39 shows estimated losses in net cash returns to the six  
40 hypothetical operations as a result of eliminating federal  
41 forage. These losses are expressed both as reduced herd sizes  
42 and decreased net cash returns (net receipts minus expenses).

43 In this analysis, the impact would be greatest for a herd size of  
44 425 cows and a 60 percent dependency on federal forage. Herd  
45 size would decrease by 265 cows, and net cash returns would  
46 decrease by \$22,800. For the smallest operation, 90 cows and 30

1 percent dependency, herd size would decrease by 28 and net cash returns would decrease by \$2,400.



Table 4-14: IMPACTS TO RANCH OPERATIONS UNDER THE NO GRAZING  
ALTERNATIVE

Herd Size	% Dependency on Federal Forage	% Cut In AUMs	# Of Cows Lost Per Permitted Herd	Net Cash Returns Lost Due To Smaller Herd Size
425	60.0	100	265.2	\$22,807
425	30.0	100	132.6	11,404
210	60.0	100	131.0	11,266
210	30.0	100	65.5	5,633
90	60.0	100	56.2	4,833
90	30.0	100	28.1	2,417

Although the main adjustment permittees would make to the elimination of BLM and Forest Service forage would be to decrease their herd sizes, permittees might respond in other ways: substituting other forage (leasing more private pasture), using supplemental feed (hay), increasing the productivity of private lands (pushing ditches further up the sideslopes or installing wells and center pivot sprinkler systems to increase vegetation on private property), or encouraging federal agencies and state game officials to install wildlife bait stations to keep elk and deer in the uplands to reduce competition for forage. These responses would somewhat offset losses of federal forage.

The greatest impacts would fall on permittees most highly dependent on federal forage to meet their total feed requirements. The impact of the reductions would vary with the financial condition of the ranch and the level of dependency. Unprofitable ranches would be further stressed and might be forced to sell the operation. Even profitable operations might be forced to sell out if they were highly dependent on federal forage.

The effect would also depend on an operator's flexibility in finding and purchasing more forage. Ranches with the fewest alternatives and least flexibility would reduce their livestock the most in response to higher fees and less forage. Even ranches that do not greatly depend on federal forage would be stressed by reductions if they cannot find affordable alternative forage.

#### GRAZING FEE RECEIPT AND PAYMENT IMPACTS

No Grazing would eliminate grazing fee receipts, resulting in a \$30.8 million overall decline. Range Betterment Funds would decrease by \$15.4 million, payments to states and counties would decline by \$6 million, and revenues to the U.S. Treasury would decline by \$9.4 million. Table 4-15 shows the estimated decreases by category and agency.

Table 4-15: CHANGE IN GRAZING FEE RECEIPTS UNDER THE NO GRAZING ALTERNATIVE (1993 \$)

Range Betterment Funds	(\$15,389,000)
BLM	(\$ 9,465,000)
Forest Service	(\$ 5,924,000)
Payments to States and Counties	(\$ 5,997,000)
BLM	(\$ 3,322,000)
Forest Service	(\$ 2,675,000)
Revenues to U.S. Treasury	(\$ 9,393,000)
BLM	(\$ 6,144,000)
Forest Service	(\$ 3,249,000)
TOTAL	(\$30,778,000)
BLM	(\$18,931,000)
Forest Service	(\$11,847,000)
BLM	(\$18,931,000)
Range Betterment Funds	(\$ 9,465,000)
Payments to States and Counties	(\$ 3,322,000)
Revenues to U.S. Treasury	(\$ 6,144,000)
Forest Service	(\$11,847,000)
Range Betterment Funds	(\$ 5,924,000)
Payments to States and Counties	(\$ 2,675,000)
Revenues to U.S. Treasury	(\$ 3,249,000)
Due to rounding, numbers may not add up to totals.	

## SOCIAL CONDITIONS

### PERMITTEES

Under No Grazing, the losses in income experienced by the average permittee (with a herd size of 210 cows and a 30 percent dependency rate) would be \$5,633 annually. Some permittees would have greater losses than the average. Others would have smaller losses. The size of the loss for any permittee would depend on the size of the operation and the dependency on federal forage. The effect of the loss on any individual permittee would vary by the size of the loss, the financial condition of the operation, and the dependence of the ranch family on the operation.

1 Under No Grazing, losses in income would be greater than for all  
2 other alternatives. Permittees would also be concerned about how  
3 the loss of permits would reduce the value of ranches. These  
4 losses in ranch income would result in declines in the economic  
5 well-being of many permittees and their families. Lifestyle  
6 changes in response to the income loss would include families  
7 decreasing their spending, diversifying operations to make them  
8 less dependent upon ranching, or sending family members to work  
9 off the ranch to bring in more income. Economically marginal  
10 ranches may be encouraged to sell, either to other ranchers or to  
11 developers in regions where demand for rural homesites is  
12 increasing. Most permittees would try to adjust their  
13 operations to absorb the income losses rather than sell their  
14 ranches because maintaining the ranching lifestyle is important  
15 to them. But under No Grazing, some operations could no longer  
16 stay in business.

17 The social impacts to permittees, ranch families, and ranch  
18 employees would be far reaching and most severe under No Grazing.  
19 Although economic loss contributes significantly to social  
20 stress, possibly of equal importance is the disruption of  
21 traditional lifestyles, attitudes, and beliefs. Personal  
22 characteristics of self-sufficiency, independence, hard work, and  
23 other traits associated with the ranching lifestyle would be  
24 deeply shaken for many permittees. The average rancher is 55  
25 years old; it would be difficult for many who lose their ranches  
26 to obtain other suitable employment. The social consequences  
27 discussed in the Impacts Common to All Alternatives section of  
28 Chapter 4 would be accelerated under No Grazing.

29 For ranching community residents No Grazing would intensify  
30 feelings of mistrust and loss of personal control and further  
31 threaten lifestyles, resulting in highly negative attitudes  
32 toward BLM, the Forest Service, and the Federal Government in  
33 general. Interactions with other public land users would  
34 continue to be stressful for the ranching community. Currently,  
35 in some areas, ranchers and other interest groups are working  
36 together toward mutually beneficial land management goals. No  
37 Grazing would make the tasks of such groups more difficult.

38 Some permittees would close off access to their base property and  
39 any access they control to public land to exert some control over  
40 their land.

#### 41 COUNTRIES AND COMMUNITIES

42 Westwide in the short and long term under No Grazing, 18,300 jobs  
43 would be lost. These losses represent jobs in all sectors of the  
44 economy--ranch employment as well as jobs directly and indirectly  
45 related to ranching. Many more jobs would be lost than under the  
46 Environmental Enhancement alternative. Job losses, however,  
47 would be insignificant at the westwide level. Moreover, some of

1 the decline in employment would be absorbed through retirements  
and people seeking other types of work in the normal course of  
their lives.

4 The effects of the No Grazing alternative would include the  
5 outmigration of some permittee families whose operations or  
6 businesses could not support them. Families dependent upon local  
7 businesses, particularly agricultural supply and retail stores,  
8 could also be affected. The level of outmigration would depend  
9 on the financial condition of the permittees, their job skills,  
10 and employment opportunities in the local area. The social  
11 impacts to permittees and their families, ranch employees, and  
12 related business would be far reaching and most severe under No  
13 Grazing.

14 "Typical small communities (as described in Chapter 3) are most  
15 likely to be affected under No Grazing because they are currently  
16 losing population and they have a lower capacity to respond to  
17 change. In other areas, such as Gunnison County, Colorado,  
18 population declines from permittee family outmigration might be  
19 offset by people moving into the area as part of the rural  
20 development trend. New people might have different attitudes and  
21 values than the people leaving the area and would probably place  
22 less importance on the traditional values of ranching families.  
23 The potential effects of job and population loss on local  
24 communities are described in the Social Conditions discussion in  
25 the Impacts Common to All Alternatives section at the beginning  
of Chapter 4.

27 In some communities such as Rawlins, Wyoming, residents believe  
28 that ranching is an important part of their community and  
29 lifestyle. Residents would be highly concerned about the change  
30 in emphasis away from livestock management and would strongly  
31 resent any alternative that removed livestock grazing from  
32 federal lands. No Grazing would improve recreation quality, but  
33 local recreationists and those promoting recreation as a way to  
34 diversify the local economy would probably not favor this  
35 alternative because of its potential to harm to permittees and  
36 the community.

37 Residents would tend to attribute any sale of a permittee's  
38 operation to elimination of livestock grazing on federal lands,  
39 even if the sale resulted from other factors. Residents and  
40 permittees would probably also feel increased resentment and  
41 distrust toward the Federal Government and federal agencies  
42 because of reduced local control over the management of public  
43 lands. Such feelings would make future cooperation between many  
44 local people and BLM and the Forest Service extremely difficult,  
45 even in the long term.

1 Where rural areas are being developed, ranchers and some  
2 newcomers are concerned that Rangeland Reform '94 will accelerate  
3 urbanization.

4 In areas where the population is more diverse, such as Gunnison,  
5 Colorado, No Grazing may appeal to some newcomers and people  
6 interested in tourism, and to some environmental and recreation  
7 groups. But recreationists and environmentalists who fear loss  
8 of recreation access and open space due to development would be  
9 reluctant to support No Grazing. Differences in opinions and  
10 values among community groups could result in less cooperation  
11 and support among groups within these communities under No  
12 Grazing.

### 13 NATIONAL IMPACTS

14 Increasing numbers of people in the West and across the country  
15 believe that rangeland management should emphasize protecting  
16 rangeland resources rather than managing livestock. Most people  
17 also support agricultural use of the land. Some people may feel  
18 that No Grazing is necessary to protect riparian and wildlife  
19 resources. Most people, however, would believe that No Grazing is  
20 too restrictive in removing all livestock from federal lands.  
21 People who favor this alternative would feel satisfied about  
22 government in general, BLM and the Forest Service, and the  
23 policymaking process.

24 Some recreationists and environmentalist believe that livestock  
25 grazing should be prohibited on public lands. Others feel that No  
26 Grazing is too restrictive. The condition of these resources is  
27 important to these groups because they see them as potential  
28 recreation areas and because many appreciate just knowing that  
29 these areas exist and will continue to exist in the future.  
30 Generally, people living close to the affected communities would  
31 support the livestock industry more than those living further  
32 away.



**CHAPTER 5  
CONSULTATION AND COORDINATION**

**COOPERATING AGENCY**

The Forest Service, U.S. Department of Agriculture, was a cooperating agency in the preparation of this draft EIS.

**CONSULTATION**

During preparation of the draft EIS, BLM and the Forest Service consulted informally with the Fish and Wildlife Service and National Marine Fisheries Service under Section 7 of the Endangered Species Act. Formal consultation will be initiated when a final alternative is selected. More detailed consultation may be needed on a case-by-case basis when the selected alternative is implemented. Implementation actions would be evaluated to determine if they may affect federally listed threatened or endangered (T&E) species, species proposed for listing, or designated or proposed T&E critical habitats. Before implementing actions that may affect listed or proposed species, the agencies will consult with the Fish and Wildlife Service or the National Marine Fisheries Service as required by Section 7 of the Endangered Species Act. When appropriate, BLM and the Forest Service will conduct this consultation using an ecosystem or species rangewide approach.

Before authorizing surface disturbance undertakings at the regional or local level, BLM and the Forest Service will identify cultural properties eligible for inclusion in the National Register of Historic Places and consider the effects of the proposed undertakings through the consultation process in Section 106 of the National Historic Preservation Act of 1966.

**PUBLIC PARTICIPATION**

The EIS public participation process consists of several phases. Public participation begins with scoping, which is conducted to help identify issues and alternatives before any decisions are made. Information gathered during scoping is analyzed and used in determining the issues to be addressed and the alternatives to be presented in detail in a draft EIS.

A draft EIS is subject to further public review and comment during the public comment period. Following the comment period, a final EIS is developed. The final EIS incorporates any additional comments received during the review period.

Including public involvement throughout the process ensures that the process is open and considers information from all interested parties, including other federal agencies, state and local government, the scientific community, professional organizations,

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a variety of public land users, conservation organizations, and citizens at large.

With respect to rangeland reform, public participation opportunities have so far included five grazing town hall public meetings, a 60-day comment period on the BLM and Forest Service advance notices of proposed rulemaking, and a 70-day scoping period for the draft EIS. Further opportunities include the current public comment periods for the draft EIS and for the BLM and Forest Service proposed rulemakings, which were published in the *Federal Register* when the draft EIS was issued.

**GRAZING TOWN HALL MEETINGS**

During the spring and summer of 1993, Secretary of the Interior Bruce Babbitt conducted the following public meetings in the West to obtain public views on the grazing program:

April 30	Bozeman, MT
May 1	Reno, NV
May 5	Grand Junction, CO
May 6	Albuquerque, NM
July 9	Flagstaff, AZ

Representatives from the Department of Agriculture, including the Forest Service, accompanied the Secretary at these meetings. Thousands of people attended. More than 300 members of the public testified, and more than 1,300 people submitted letters and comment sheets during or after the meetings. Discussions centered on the importance of protecting and restoring the condition of the public rangeland, the fate of the current grazing fee and formula, and the economic importance of public resources to rural communities.

Although these meetings were not part of the formal scoping process for the Rangeland Reform '94 Draft EIS, BLM and the Forest Service considered the views expressed at these meetings and in later correspondence while developing the rangeland reform initiative and the draft EIS. (For further information, see Appendix S, Summary of 1993 Grazing Town Hall Meetings.)

**SCOPING**

An extensive public scoping process was conducted for the Rangeland Reform '94 Draft EIS. A notice of intent to prepare the EIS and to invite public comments and suggestions on the scope of the analysis was published in the July 13, 1993, *Federal Register*. The scoping period was reopened for 30 more days through an August 13, 1993, *Federal Register* notice, and then for 30 more days through a September 20, 1993, *Federal Register* notice. Concurrently, BLM and the Forest Service each published an advance notice of proposed rulemaking in the August 13, 1993,

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*Federal Register*. These notices provided a 30-day comment period, which was extended by 30 days in the September 20, 1993, *Federal Register*.

News releases were issued nationwide at the same time that the *Federal Register* notices were published in July, August, and September. Beginning in August, informational packages on rangeland reform were provided to permittees, interest groups, state and local governments, congressional offices, and Native American groups. When requested, briefings were provided to entities such as local and state governments, grazing advisory boards, industry associations, and environmental and recreation groups.

More than 12,600 pieces of mail were received from July 13 through October 20, 1993. Of these, more than a third were duplicates (letters sent by the same party more than once or to more than one government entity). Comment letters were sent to Secretary of the Interior Bruce Babbitt; Secretary of Agriculture Mike Espy; BLM Director Jim Baca; Michael J. Penfold, BLM's Assistant Director for Land and Renewable Resources; the Director, Range Management Staff, Forest Service; and members of Congress.

A BLM-Forest Service comment analysis team was established to review the comment letters. Each letter was identified by a six-part code showing its sequential number, affiliation (organizations and industry, individuals, government), state of origin, number of signatures, type of letter (original letter or post card, form letter, modified form letter, petition, or resolution), and the agencies to whom the letter was sent. Each comment was coded to one of 156 distinct fields, each of which represents a unique idea, alternative, issue, or specific level of detail.

Comments were captured in a relational data base that allows retrieval individually or in myriad combinations. After identifying and filing duplicate letters, the comment analysis team recorded more than 56,000 comments from more than 8,000 letters. The results of comment analysis were given to the EIS team. Letters postmarked after October 20, 1993, were reviewed for unique ideas and also given to the EIS team. To support data in the computer, all original letters and analyzed copies of letters have been kept on file in sequential order.

Issues, concerns, and alternatives identified during the scoping process are discussed in Chapter 1.

**DISTRIBUTION OF THE DRAFT EIS**

Copies of the draft EIS have been sent to federal agencies, state and local governments, livestock operators and companies,

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environmental organizations, and many people concerned about the outcome of the rangeland reform process. Correspondence generated by the grazing town meetings, EIS scoping, and BLM and Forest Service advance notices of proposed rulemakings was used to develop a basic mailing list; one copy of the draft EIS was sent to each address.

The draft EIS has been released for public review and comment during a 90-day public comment period. Concurrently, there is a 90-day public comment period on BLM's and the Forest Service's proposed rulemakings; both were published in the *Federal Register* when the draft EIS was issued. The impacts of the proposed rules and alternatives are analyzed in the draft EIS.

**ADDITIONAL ACTIONS**

The final EIS will incorporate comments and changes resulting from the public comment period. No sooner than 30 days after publication of the final EIS, the Secretaries of the Interior and Agriculture will issue separate records of decisions for their respective rangeland management reforms, including a grazing fee formula. At the same time, on the basis of these records of decision, each agency will publish final rules in the *Federal Register*. See Figure 5-1 for the general steps in the EIS and rulemaking process.

**Figure 5-1: ADMINISTRATIVE PROCESS**

The decisions resulting from the analysis in the draft and final EISs may be implemented in a variety of ways. See the Implementation section in Chapter 2 for further discussion.



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<u>17</u>	Jacobs, Tom	Range Conservationist, BLM
<u>18</u>		(Medford DO)
<u>19</u>		B.S., Range Conservation
<u>20</u>		(Washington State University)
<u>21</u>	Jenks, Frank	Recreation Planner, BLM
<u>22</u>		(Boise DO)
<u>23</u>		B.A., Anthropology (University
<u>24</u>		of Toledo)
<u>25</u>	Kapus, Jennifer	Visual Information Specialist
<u>26</u>		BLM (SC)
<u>27</u>		B.F.A., Creative Arts
<u>28</u>		(University of Colorado,
<u>29</u>		Denver)
<u>30</u>	Kiracofe, Steve	Soil Scientist, BLM
<u>31</u>		B.S., Agronomy (University
<u>32</u>		of Maryland)
<u>33</u>	Kleweno, Doug	Section Leader Farm Inputs,
<u>34</u>		NASS/ES
<u>35</u>		B.S. Agricultural Economics
<u>36</u>		(Washington State University)
<u>37</u>	Kolkman, Gene	Planning and Environmental
<u>38</u>		Analyst, BLM (WO)
<u>39</u>		B.A., Economics (University of
<u>40</u>		Colorado)
<u>41</u>	Koselak, Janine	Visual Information Specialist
<u>42</u>		BLM (SC)

PREDECISIONAL DRAFT-NOT FOR CIRCULATION-February 25, 1994

<u>1</u>		B.F.A., Fine Arts
<u>2</u>		(Metropolitan State College)
<u>3</u>	Kotter, Kurt	Range Conservationist, BLM
<u>4</u>		(WO)
<u>5</u>		M.S., Range Science (Utah
<u>6</u>		State University)
<u>7</u>		B.S., Wildlife (Utah State
<u>8</u>		University)
<u>9</u>	Kraayenbrink, Joe	Wildlife Biologist, BLM
<u>10</u>		B.S., Wildlife and Fisheries
<u>11</u>		Sciences (South Dakota State
<u>12</u>		University)
<u>13</u>	Lechefskey, Dan	Land Use Specialist, BLM
<u>14</u>		(MTSO)
<u>15</u>		B.S., Forest Botany (State
<u>16</u>		University of New York City
<u>17</u>		and University of Nevada)
<u>18</u>	Ledbury, Dan	Agricultural Statistician,
<u>19</u>		NASS/ES
<u>20</u>		B.S., Agricultural Economics
<u>21</u>		(Oregon State University)
<u>22</u>	Leonard, Steve	Rangeland Field
<u>23</u>		Representative, BLM (WO/NVSO)
<u>24</u>		B.S., Range and Forest
<u>25</u>		Management (Colorado State
<u>26</u>		University)
<u>27</u>	Loth, Ed	Refuge Program Specialist,
<u>28</u>		Fish and Wildlife Service (WO)
<u>29</u>		B.S., Wildlife Biology
<u>30</u>		(Colorado State University)
<u>31</u>	Loving, Lorrie	Staff Assistant, BLM (WO)
<u>32</u>	McClure, Virginia	Staff Assistant, BLM (NVSO)
<u>33</u>		(University of Nevada;
<u>34</u>		Student)
<u>35</u>	McCormick, Jerry	Range Specialist, Forest
<u>36</u>		Service (WO)
<u>37</u>		B.S., Forest/Range Science
<u>38</u>		(Colorado State University)
<u>39</u>	McGinty, Herbert K.	Writer-Editor, BLM
<u>40</u>		(Training Center)
<u>41</u>		M.A., Geography
<u>42</u>		(Clark University)

PREDECISIONAL DRAFT-NOT FOR CIRCULATION-February 25, 1994

<u>2</u>		B.A., History (Duke University)
<u>3</u>	McNatt, Randy M.	Fishery Program Lead/ Riparian Coordinator, BLM
<u>4</u>		(NVSO)
<u>5</u>		Ph.D., Zoology (Arizona
<u>6</u>		State University)
<u>7</u>		B.A., Zoology (Utah State
<u>8</u>		University)
<u>9</u>		
<u>10</u>	McVicker, Gary	Ecosystem Program Manager, BLM
<u>11</u>		(COSO)
<u>12</u>		B.S., Range Management
<u>13</u>		(University of New Mexico)
<u>14</u>	McWhirter, David C.	Assistant District Manager
<u>15</u>		BLM (Rawlins DO)
<u>16</u>		B.S., Range Watershed
<u>17</u>		Management
<u>18</u>		(Utah State University)
<u>19</u>	MacDonald, Carol	Public Affairs Specialist,
<u>20</u>		BLM (WO)
<u>21</u>		M.A., English (University of
<u>22</u>		Denver)
<u>23</u>		B.A., English (University of
<u>24</u>		Denver)
<u>25</u>	MacPhee, Douglas	Range Conservationist, Forest
<u>26</u>		Service
<u>27</u>		B.S., Resource Management
<u>28</u>		(University of Tucson, AZ)
<u>29</u>	Madry, Nina	Cartographic Technician, BLM
<u>30</u>		IDSO
<u>31</u>		(Boise State University;
<u>32</u>		Geography Student)
<u>33</u>	Mangan, Larry	Wildlife Biologist, BLM (Coos
<u>34</u>		Bay, OR)
<u>35</u>		B.S., Biology (Loyola
<u>36</u>		University)
<u>37</u>	Masinton, Roy	Fishery Biologist, BLM (NMSO)
<u>38</u>		B.S., Fishery Biology
<u>39</u>		(Colorado State University)
<u>40</u>	Mathews, Ken	Agricultural Economist,
<u>41</u>		Economic Research Service
<u>42</u>		Ph.D., Economics (North
<u>43</u>		Carolina State University)

PREDECISIONAL DRAFT-NOT FOR CIRCULATION-February 25, 1994

<u>1</u>		M.S., Agricultural Economics
<u>2</u>		(Texas Technology College)
<u>3</u>		B.S., Wildlife Science (Texas
<u>4</u>		A&M)
<u>5</u>	Mehlhoff, Sue	Environmental Scientist, BLM
<u>6</u>		(WO)
<u>7</u>		B.S., Petroleum Engineering
<u>8</u>		(University of Wyoming)
<u>9</u>	Miles, Thomas	Supervisory Range
<u>10</u>		Conservationist, BLM
<u>11</u>		(Jordon RA)
<u>12</u>		B.S., Wildlife Management
<u>13</u>		(Humboldt State University)
<u>14</u>	Moore, Marcia	Planning and Environmental
<u>15</u>		Analyst, BLM (WO)
<u>16</u>		M.A., Science Writing (Johns
<u>17</u>		Hopkins University)
<u>18</u>		B.A., Biology and Business
<u>19</u>		Management (Alverno College)
<u>20</u>	Moore, Steve	Environmental Coordinator, BLM
<u>21</u>		(Grand Junction DO)
<u>22</u>		M.S., Agricultural Economics
<u>23</u>		(Colorado State University)
<u>24</u>		B.A., History (University of
<u>25</u>		Santa Clara)
<u>26</u>	Morgan, Larry	Range Conservationist, BLM
<u>27</u>		(California Desert District)
<u>28</u>		B.S., Range Management
<u>29</u>		(California State University)
<u>30</u>	Muller, Dan	Chief, Soil, Water, and Air
<u>31</u>		Section, BLM (SC)
<u>32</u>		B.S., Watershed Science
<u>33</u>		(Colorado State University)
<u>34</u>	Murphy, Dennis	Hydrologist, BLM
<u>35</u>		(Montrose DO)
<u>36</u>		B.S., Forestry/Watershed (Utah
<u>37</u>		State University)
<u>38</u>	Myers, Paul	Regional Economist, BLM (NVSO)
<u>39</u>		B.S., Economics
<u>40</u>		(University of Nevada)
<u>41</u>	Nelson, Ken	Section Leader, Livestock
<u>42</u>		Research, Economic Research
<u>43</u>		Service

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7 Nelson, Robert  
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14 Nowak, Tim  
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20 O'Neal, Toris E.  
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23 Otteni, Lee  
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29 Perotto, Louise (Laurie)  
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33 Peters, Thomas  
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38 Phillips, Gerry  
39 Phillips, Margaret  
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Ph.D, Agricultural Economics  
(Oklahoma State)  
M.S., Agricultural Economics (Oklahoma State)  
B.A., Economics (Nebraska Wesleyan University)  
Economist; Office Policy Analysis, Department of the Interior (WO)  
Ph.D, Economics (Princeton University)  
B.A., Mathematics (Brandeis University)  
Archeologist, BLM (Rawlins DO)  
M.A., Anthropology/Archeology (Harvard University)  
B.A., Anthropology (University of Minnesota)  
Economist, Forest Service (WO)  
B.A., Economics (Howard University)  
State Commissioner, New Mexico State Land Office  
M.S., Wildlife/Range Management (Texas Tech)  
B.A., Wildlife Management (New Mexico State University)  
Idaho State Grazing Authorization and Billing System Coordinator, BLM (Idaho Falls)  
Assistant District Ranger Forest Service, Mark Twain National Forest  
B.S., Wildlife Management (Humboldt State University)  
Staff Assistant, BLM (SC)  
Recreation Planner, BLM (NVSO)  
M.S., Public Administration (California State University - Bakersfield)  
B.A., Planning (Western State College)



**PREDECISIONAL DRAFT-NOT FOR CIRCULATION-February 25, 1994**

<u>1</u>	Prentice, Patricia	Office Automation Assistant,
<u>2</u>		BLM (Grand Junction DO)
<u>3</u>		B.S., Organizational
<u>4</u>		Management (Colorado Christian
<u>5</u>		University)
<u>6</u>	Prichard, Don	Fishery Biologist, BLM (SC)
<u>7</u>		B.S., Fisheries Biology
<u>8</u>		(Colorado State University)
<u>9</u>	Pruiett, Brian	Range Conservationist, BLM
<u>10</u>		(Buffalo RA)
<u>11</u>		B.S., Range Management and
<u>12</u>		Soil Science (Skagit Valley
<u>13</u>		College)
<u>14</u>	Pulliam, David E.	Wildlife Biologist, BLM (NVSO)
<u>15</u>		M.S., Range/Forest Management
<u>16</u>		(Washington State University)
<u>17</u>		B.S., Range Management
<u>18</u>		(Washington State University)
<u>19</u>	Ramey, George	Range Conservationist, BLM
<u>20</u>		(WO)
<u>21</u>		B.S., General Forestry (Utah
<u>22</u>		State University)
<u>23</u>	Rathbun, Daniel C.B.	Deputy State Director,
<u>24</u>		BLM (NVSO)
<u>25</u>		B.S., Range Management (New
<u>26</u>		Mexico State University)
<u>27</u>	Rawson, Jeff	Range Conservationist, BLM
<u>28</u>		(AZSO)
<u>29</u>		B.S., Wildlife (Utah State
<u>30</u>		University)
<u>31</u>	Richardson, Sue	Data Administrator, BLM (WO)
<u>32</u>		M.S., Sociology (Texas A&M
<u>33</u>		University)
<u>34</u>		B.S., Sociology (Texas A&M
<u>35</u>		University)
<u>36</u>	Riracofe, Stephen B.	Soil Scientist, BLM
<u>37</u>		(Worland DO)
<u>38</u>		B.S., Agronomy
<u>39</u>		(University of Maryland)
<u>40</u>	Ririe, Warren	Rangeland Management
<u>41</u>		Specialist, Forest Service
<u>42</u>		(Boise National Forest)
<u>43</u>		M.S., Forestry (Michigan

PREDECISIONAL DRAFT-NOT FOR CIRCULATION-February 25, 1994

<u>2</u>		State)
<u>3</u>		B.S., Range Conservation (Idaho State University)
<u>4</u>	Rising, Mike	Wildlife, Range and Watershed,
<u>5</u>		Apache Setgraves National
<u>6</u>		Forest
<u>7</u>		B.S., Range Science and
<u>8</u>		Agriculture Business (New
<u>9</u>		Mexico State University and
<u>10</u>		Eastern New Mexico State
<u>11</u>		University.)
<u>12</u>	Romaniello, Charles G.	Industry Economist, BLM (COSO)
<u>13</u>		M.S., Natural Resource
<u>14</u>		Economics (University of
<u>15</u>		Arizona)
<u>16</u>		B.A., Anthropology
<u>17</u>		(University of Arizona)
<u>18</u>	Salinas, Fred S.	District Ranger,
<u>19</u>		Forest Service (Gallatin
<u>20</u>		National Forest)
<u>21</u>		B.S., Rangeland Resource
<u>22</u>		Management
<u>23</u>		(University of Idaho)
<u>24</u>	Salt, Tim	Evaluation Specialist, BLM
<u>25</u>		(WO)
<u>26</u>		B.S., Natural Resources
<u>27</u>		Management (California
<u>28</u>		Polytechnic State University)
<u>29</u>	Secrist, Glen	Chief, Branch of Range
<u>30</u>		Management, BLM (WO)
<u>31</u>		B.S., Range Science (Utah
<u>32</u>		State University)
<u>33</u>	Seegmiller, Phil	Range Conservationist, BLM
<u>34</u>		(Arizona Strip DO)
<u>35</u>		B.S., Outdoor Recreation
<u>36</u>		(Utah State University)
<u>37</u>	Shaw, Elena	Supervisory Range
<u>38</u>		Conservationist, BLM
<u>39</u>		(Burley DO)
<u>40</u>		B.S., Range Science
<u>41</u>		(New Mexico State University)
<u>42</u>	Shilling, Mikel J.	Branch Chief, Forest Service
<u>43</u>		B.S. and B.A., Marketing
<u>44</u>		(University of Arizona)

**PREDECISIONAL DRAFT-NOT FOR CIRCULATION-February 25, 1994**

<u>1</u>	Siminoe, Ben	Branch Chief, Range, Wildlife,
<u>2</u>		Watershed and Air, Humboldt
<u>3</u>		National Forest
<u>4</u>		B.S., Forestry and Range
<u>5</u>		Management (Colorado State
<u>6</u>		University)
<u>7</u>	Siverts, Eric	Economist, Forest Service (WO)
<u>8</u>		Ph.D., Forest Economics
<u>9</u>		(Michigan State)
<u>10</u>		M.S., Forest Management
<u>11</u>		(Colorado State)
<u>12</u>		B.S., Forest Management
<u>13</u>		(Colorado State)
<u>14</u>	Slack, Jay	General Biologist,
<u>15</u>		Fish and Wildlife Service
<u>16</u>		(WO)
<u>17</u>		M.S., Biology (Illinois State
<u>18</u>		University)
<u>19</u>		B.S., Biology (Illinois State
<u>20</u>		University)
<u>21</u>	Smith, Eric	Statistician (Biology), Forest
<u>22</u>		Service (WO)
<u>23</u>		Ph.D., Forest Economics
<u>24</u>		(University of Minnesota)
<u>25</u>		M.S., Forest Management (Iowa
<u>26</u>		State University)
<u>27</u>		B.S., Recreation (Iowa State
<u>28</u>		University)
<u>29</u>	Soto, Maria	Staff Assistant, BLM
<u>30</u>		(Bakersfield)
<u>31</u>	Sparks, Donnie	District Manager, BLM (Canon
<u>32</u>		City)
<u>33</u>		M.S., Range Science (Colorado
<u>34</u>		State University)
<u>35</u>		B.S., Range Science (New
<u>36</u>		Mexico State University)
<u>37</u>	Stabler, Fred	Wildlife Biologist, BLM (WO)
<u>38</u>		M.S., Fisheries Resources
<u>39</u>		(University of Idaho)
<u>40</u>	Stiles, Mark	Regulations Analyst, BLM (WO)
<u>41</u>		M.S., Economics (Colorado
<u>42</u>		State University)
<u>43</u>		B.S., Wildlife Biology
<u>44</u>		(Colorado State University)

PREDECISIONAL DRAFT-NOT FOR CIRCULATION-February 25, 1994

1 Stout, James Resource Officer,  
2 Forest Service (Klamath  
3 National Forest)  
4 B.S., Range Management  
5 (Humboldt State University)

6 Talbot, Neil Planning and Environmental  
7 Analyst, BLM (NWSO)  
8 B.S., Range Management  
9 (Utah State University)

10 Tower, Jerald D. District Forest Ranger,  
11 Forest Service (Caribou  
12 National Forest)  
13 M.S., Range Ecology  
14 (UNR)  
15 B.S., Botany (Brigham-Young  
16 University)

17 Trent, Joan Sociologist, BLM (MTSO)  
18 M.En, Environmental Science  
19 (Miami University of Ohio)  
20 B.A., Psychology (Miami  
21 University of Ohio)

22 VanWyhe, Janis Associate District Manager  
23 BLM (Shoshone DO)  
24 B.A., Environmental Studies  
25 (San Jose State University)

26 Vaughn, Christina Staff Assistant, BLM (SC)  
27 (Pikes Peak Community College)

28 Vienop, James Writer/Editor, BLM (Klamath)  
29 B.A., Biology  
30 (Humboldt State University)

31 Wade, Beatrice Planning and Environmental  
32 Coordination, BLM (ESO)  
33 B.S., Forestry/Wildlife  
34 Management/Range Ecosystem  
35 Management (University of  
36 Florida)

37 Waite, Don Chief, Branch of Soil, Water  
38 and Air, BLM (WO)  
39 M.S., Resource Economics  
40 (Colorado State University)  
41 B.S., Agricultural Economics  
42 (Montana State University;  
43 Colorado State University)

PREDECISIONAL DRAFT-NOT FOR CIRCULATION-February 25, 1994

<u>1</u>	Walker, Tom	Chief, Division of Planning
<u>2</u>		and Environmental
<u>3</u>		Coordination, BLM (WO)
<u>4</u>		B.S., Natural Resource
<u>5</u>		Management (California
<u>6</u>		Polytechnic State University)
<u>7</u>	Wasser, Allyn S.	Range Staff Officer,
<u>8</u>		Forest Service (Kaibab
<u>9</u>		National Forest)
<u>10</u>		B.S., Range Management
<u>11</u>		(Colorado State University)
<u>12</u>	Whitterieud, Craig	Assistant Director/Range,
<u>13</u>		Renewable Resources Staff,
<u>14</u>		Forest Service (Rocky Mountain
<u>15</u>		Region)
<u>16</u>		B.S., Range Management (Utah
<u>17</u>		State University)
<u>18</u>	Weiss, Marvin	Natural Resource Specialist,
<u>19</u>		BLM (AZSO)
<u>20</u>		B.S., Agronomy
<u>21</u>		(University of Wyoming;
<u>22</u>		University of Colorado)
<u>23</u>	Williams, Jeff T.	Economist, BLM (UTSO)
<u>24</u>		M.S., Resource Economics, ABT
<u>25</u>		(Utah State University)
<u>26</u>		B.S. Range Science
<u>27</u>		(Utah State University)
<u>28</u>	Williamson, Robert	Director of Range Management,
<u>29</u>		Forest Service (WO)
<u>30</u>		B.S., Range Management (Utah
<u>31</u>		State University)
<u>32</u>	Willis, Dennis	Outdoor Recreation Planner,
<u>33</u>		BLM (Moab DO)
<u>34</u>		B.S., Renewable Natural
<u>35</u>		Resources (University of
<u>36</u>		Nevada)
<u>37</u>	Woerner, Robert	Writer/Editor, BLM (SC)
<u>38</u>		B.A., English (Grand Valley
<u>39</u>		State College)
<u>40</u>	Woosley, Terry	Chief, Branch of Biological
<u>41</u>		Resources, BLM (NVSO)
<u>42</u>		B.S., Forest Management
<u>43</u>		(Colorado State University)



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Maps were prepared by the BLM Idaho State Office, Cartographic  
Section: Troy Bunch (Chief), Nina Madry, Clarence Ouellette,  
Stephanie Singer, Matt Muta, Denise Beck.

### GLOSSARY

**ACCELERATED EROSION:** Soil loss above natural levels resulting directly from human activities. Due to the slow rate of soil formation, accelerated erosion can lead to a permanent reduction in plant productivity.

**ACTIVE PREFERENCE:** The difference between grazing preference and suspended preference.

**ACTIVE USE:** Authorized livestock use for the current billing year.

**ACTIVITY PLAN:** A detailed and specific plan for managing a single resource program or plan element undertaken as needed to implement the more general resource management plan decisions. An activity plan is prepared for specific areas to reach specific resource management objectives within stated timeframes.

**ADJUDICATION:** The apportionment of grazing use on public rangelands among eligible applicants.

**AFFECTED INTEREST:** A person or organization that has expressed in writing to the authorized officer concern for the management of livestock grazing on a specific grazing allotment and who has been determined by the authorized officer to be an affected interest.

**ALLOTMENT:** An area of land where one or more individuals graze their livestock. An allotment generally consists of federal rangelands, but may include intermingled parcels of private, state, or federal lands. BLM and the Forest Service stipulate the number of livestock and season of use for each allotment.

**ALLOTMENT MANAGEMENT PLAN (AMP):** A livestock grazing management plan dealing with a specific unit of rangeland and based on multiple use resource management objectives. The AMP considers livestock grazing in relation to other uses of rangelands and in relation to renewable resources--watershed, vegetation, and wildlife. An AMP establishes the seasons of use, the number of livestock to be permitted on rangelands, and the rangeland improvements needed.

**ALLUVIAL:** Pertaining to material that is carried and deposited by running water.

**ALLUVIUM:** Any sediment deposited by flowing water, as in a river bed, floodplain, or delta.

**ANADROMOUS FISH:** Fish such as salmon and steelhead trout that mature in the sea and migrate into streams to spawn.

**ANIMAL MONTH:** A month's tenure on rangeland by one animal of any class.

**ANIMAL UNIT:** A unit of measure for rangeland livestock equivalent to one mature cow or five sheep or five goats, all over 6 months of age. An animal unit is based on average daily forage consumption of 26 pounds of dry matter per day.

**ANIMAL UNIT MONTH (AUM):** The amount of forage needed to sustain one cow, five sheep, or five goats for a month. A full AUM's fee is charged for each month of grazing by adult animals if the grazing animal (1) is weaned, (2) is 6 months old or older when entering public land, or (3) will become 12 months old during the period of use. For fee purposes, An AUM is the amount of forage used by five weaned or adult sheep or goats or one cow, bull, steer, heifer, horse, or mule. The term AUM is commonly used in three ways: (1) stocking rate as in X acres per AUM, (b) forage allocation as in X AUMs in allotment A, and (3) utilization as in X AUMs consumed from Unit B.

**ANNUAL PLANT:** A plant that completes its life cycle and dies in 1 year or less.

**APPROPRIATE MANAGEMENT LEVEL (AML):** The number of wild horses or burros suitable for a herd management area as determined through BLM's planning process and evaluation of monitoring data.

**APPROPRIATIVE WATER RIGHT:** Unappropriated water that is available for appropriation.

**AQUATIC HABITATS:** Habitats confined to streams, rivers, springs, lakes, ponds, reservoirs, and other water bodies.

**AQUATIC RESOURCES:** Plants and animals that live within or are entirely dependent upon water to live; living resources of aquatic habitats (fish, invertebrates, amphibians); aquatic species.

**AQUIFER:** A water-bearing bed or layer of permeable rock, sand, or gravel capable of yielding large amounts of water.

**AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC):** An area within public lands where special management attention is required (1) to protect and prevent irreparable damage to fish and wildlife; important historic, cultural, or scenic values; or other natural systems or processes or (2) to protect life and safety from

natural hazards.

**ARID REGION:** A region where precipitation is insufficient to support any but drought-adapted vegetation.

**ASPECT:** (1) The visual first impression of vegetation at a particular time or as seen from a specific point. (2) The predominant direction of slope of the land.

**AUTHORIZED OFFICER:** Any person authorized by the Secretary of the Interior to administer BLM's rangeland management program.

**AVAILABLE FORAGE:** Forage that can be grazed and still allow sustained forage production on rangeland. Available forage may or may not be authorized for grazing.

**AVIFAUNA:** All the birds of a specific region or time division.

**BASAL COVER (AREA):** The area of ground surface covered by the stem or stems of a rangeland plant, usually measured 1 inch above the soil, in contrast to the full spread of the foliage.

**BASE PROPERTY:**

**BLM:** Lands or water sources on a ranch that are owned by or under long-term control of the operator.

**Forest Service:** Lands and improvements owned and used by a permittee for a farm or ranch and designated by the permittee to qualify for a term grazing permit.

**BASE PROPERTY LEASES:** On BLM-administered lands, the long-term lease of base property.

**BED LOAD:** Sediment in a stream that moves by sliding, rolling, or bounding on or near the streambed.

**BEEF PRICE INDEX (BPI):** An index of the weighted average annual price for beef cattle, excluding calves, for the 11-Western State area as compared with a specific base period equal to 100.

**BEST MANAGEMENT PRACTICE (BMP):** State-approved practices that are found to be technologically, economically, and institutionally the most effective and practicable ways to prevent or reduce nonpoint-source pollution to meet water quality goals.

**BIODIVERSITY:** See BIOLOGICAL DIVERSITY.

**BIOLOGICAL DIVERSITY (BIODIVERSITY):** The full range of variability within and among living organisms and the ecological complexes in which they occur. Biological diversity encompasses ecosystem or community diversity, species diversity, and genetic diversity.

**BIOMASS:** The total amount of living material, plants and animals, above and below the soil surface in a biotic community.

**BIOTA:** The animal and plant life of a particular region considered as a total ecological entity.

**BIOTASEDIMENT YIELD:** The animal and plant life of a particular region considered as a total ecological entity.

**BIOTIC COMMUNITIES:** The assemblage of native and exotic plants and animals associated with a particular site or landscape, including microorganisms, fungi, algae, vascular and herbaceous plants, invertebrates, and vertebrates. These assemblages and their biotic and abiotic relationships serve landscape and watershed functions by promoting soil properties supporting water infiltration and storage, energy and nutrient fixation, recycling and transfer, species survival, and sustainable population dynamics.

**BLM DISTRICT:** A BLM administrative subdivision responsible for a specific area of a state. A district is administered by a district manager with a technical and an administrative staff. See GRAZING DISTRICT.

**BROWSE:** Young twigs, leaves, and the tender shoots of plants or shrubs that animals eat.

**CARRYING CAPACITY:** The maximum stocking rate possible without damaging vegetation or related resources. Carrying capacity may vary from year to year on the same area due to fluctuating forage production.

**CERTIFICATE:** A document containing a certified statement, especially as to the truth of something.

**CAPILLARY ACTION:** The action by which water is drawn up through the soil in small interstices or tubes as a result of surface tension. Capillary action is most common in clay soils.

**CATEGORY 1 SPECIES:** Species for which the Fish and Wildlife Service has enough information on biological vulnerability and threats to support their listing as endangered or threatened species.



**CATEGORY 2 SPECIES:** Species for which the Fish and Wildlife Service has information suggesting the possible appropriateness for listing as endangered or threatened.

**CHAPARRAL:** A vegetation community consisting of dense and often thorny shrubs and small trees.

**CHAINING:** A mechanical vegetation treatment to improve rangeland for livestock grazing in which an anchor chain is extended between two tractors and dragged over the terrain to uproot brush and small trees such as pinyon and juniper. See RAILING.

**CIRQUE:** A glacially carved steep hollow at the upper end of a high mountain valley, often containing a small lake.

**CLASS OF LIVESTOCK:** Description of age or sex group for a particular kind of livestock, such as cow, bull, calf, yearling, ewe, ram, or lamb.

**CLIMATIC REGIME:** Areas with similar temperature and precipitation characteristics that form frameworks for comparing climatic conditions around the world.

**CLIMAX VEGETATION:** The final vegetation community and highest ecological development of a plant community that emerges after a series of successive vegetational stages. The climax community perpetuates itself indefinitely unless disturbed by outside forces.

**COLD DESERT:** Areas that are consistently dry (evaporation equals or exceeds precipitation), that have 7 or fewer months when temperatures average above 50°F, and that have average annual temperatures below 65°F.

**COLLUVIAL:** Pertaining to soil and rock material carried chiefly by gravity, such as material accumulating at the bottom of a cliff.

**COMBINED INDEX (CI):** An index produced by subtracting the PPI (Prices Paid Index) from the BPI (Beef Price Index)  $BPI - PPI = CI$ .

**COMMENSURABILITY:** Ability of a permittee's base ranch property to support permitted livestock while such livestock are off public lands.

**COMMENSURATE PROPERTY:** Land or water for livestock that qualifies a person for a grazing preference on public land. See BASE PROPERTY.

**COMMUNITY:** An assemblage of plant and animal populations in a common spatial arrangement.

**COMMUNITY OF INTEREST:** All parties concerned with the management and function of a geographical unit of land. The tie between community of interest, watershed management, and ecosystem management is important. Watersheds are the basic functional units of land that tie together the interests of a variety of participants, including ranchers, farmers, agencies, and town and city representatives. Other participants concerned with the relationships of individual watersheds to broader ecological functions should participate as members of the community of interest to influence management decisions relative to these broader perspectives.

**COMPETITIVE BIDDING:** Selling federal forage to the highest bidder.

**COMPLIANCE INSPECTIONS:** The act of verifying that users of public lands are complying with laws, permits, and rules of conduct.

**CONSERVATION RESERVE PROGRAM:** A government program, commonly used in the Soil Conservation Service, that offers long-term rental and cost-sharing assistance to establish permanent vegetation cover on cropland that is highly erodible or contributing to a serious water quality problem.

**CONSERVATION USE:** Nonuse (removing livestock from allotments) for up to 10 years for resource protection. Under the Proposed Action, the agencies could initiate conservation use. Under the Environmental Enhancement alternative either the agency or the permittee could initiate conservation use.

**CONSISTENCY:** Maintaining consistent procedures among BLM offices as well as between BLM and other agencies, such as the Forest Service.

**CONTINENTAL GLACIER:** a glacier of considerable thickness covering a large part of a continent or an area of 50,000 square kilometers, obscuring the relief of the underlying surface. Contemporary examples include ice sheets covering Greenland and Antarctica.

**CONTINUOUS SEASON-LONG GRAZING:** Grazing that occurs during the same period of use every year.

**CONTROL:** To be responsible for and providing care and management of base property, livestock, or both.

**COOL-SEASON SPECIES:** Plants whose major growth occurs during the late fall, winter, and early spring.

**COOPERATIVE MANAGEMENT AGREEMENT:** A document that describes agreements made between BLM and the public on adjustments in grazing use. This document also defines the specific adjustments and the schedule of adjustments (usually over a 5-year period).

**COORDINATED RESOURCE MANAGEMENT PLAN:** A plan for managing one or more grazing allotments that involves all affected resources, such as vegetation, wildlife, soil, and water.

**COVER:** Plants or objects used by wild animals for nesting, rearing of young, escape from predators, or protection from harmful environmental conditions.

**COW-CALF OPERATION:** A livestock operation in which a base breeding herd of mother cows and bulls is maintained. The cows produce a calf crop each year, and the operation keeps some heifer calves from each calf crop for breeding herd replacements. The rest of the calf crop is sold between the ages of 6 and 12 months along with old or nonproductive cows and bulls.

**CRITICAL HABITAT, DESIGNATED:** Specific parts of an area occupied by a federally listed threatened or endangered plant or animal at the time it is listed that contain physical or biological features essential to the conservation of the species or that may require special management or protection. Critical habitat may also include specific areas outside an area occupied by a federally listed species if the Secretary of the Interior determines that these areas are essential for the conservation of the species.

**CRITICAL LINK SPECIES:** See KEYSTONE SPECIES.

**CROSSING PERMIT:** Authorization to move livestock across public land for any legitimate purpose.

**CRYPTOBIOTIC (CRYPTOGAMIC) CRUST:** A biological community that forms a surface layer or crust on some soils. This community consists of cyanobacteria (blue-green bacteria), microfungi, mosses, lichens, and green algae. This community performs many important functions, including fixing nitrogen and carbon, maintaining soil surface stability, and preventing erosion. Cryptobiotic crusts also influence the nutrient levels of soils and the status and germination of plants in the desert. These crusts are slow to recover after severe disturbance, requiring 40 years or more to recolonize even small areas.

**CULTURAL PROPERTY:** The definite location of a past human activity, occupation, or use identifiable through field inventory, historic documentation, or oral evidence. Cultural properties include prehistoric and historic archaeological remains, or architectural sites, structures, objects, or places with important public and scientific uses.

**CULTURAL RESOURCES:** The fragile and nonrenewable remains of human activity found in historic districts, sites, buildings, and artifacts that are important in past and present human events.

**CUMULATIVE:** Increasing or enlarging by successive addition.

**DATA YEAR:** The year, generally a calendar year, for which data is collected, or the period to which the data pertains.

**DEFOLIATION:** The removal of plant leaves, by grazing or browsing, chemical action, or natural phenomena such as hail, fire, or frost.

**DEPENDENCY:** the AUMs of public forage divided by the total AUMs a livestock herd needs.

**DESERTIFICATION or DESERTIZATION:** For purposes of this EIS, the two terms may be used interchangeably. Though the term desertization is technically more accurate in describing landscape changes induced by human activity, many people commonly refer to such human-induced changes as desertification.

(a) The sustained decline or destruction of the biological productivity of arid and semiarid lands resulting from human-induced stresses, sometimes in conjunction with extreme natural events. If continued or unchecked, such stresses over the long term may lead to ecological degradation and ultimately to desert-like conditions.

(b) The expansion of desert-like conditions and landscapes to areas where they should not occur climatically or where they did not occur in historical times. This impact is worsened by temporary climatic rises, especially droughts that occur periodically several times per century. The impact may be so great that the resulting environmental deterioration becomes irreversible.

**DESERT PAVEMENT:** A desert ground surface of thin, smooth or sheet-like, wind-polished, closely packed pebbles, boulders, gravel, and other rock fragments, where wind and sheetwash have removed all smaller particles. The fragments are commonly cemented by mineralized solution.



**DESIRED FUTURE CONDITION:** The future condition of rangeland resources on a landscape scale that meet management objectives. Desired future condition is based on ecological (such as desired plant community) social, and economic considerations during the land and resource management planning process. Desired future condition is usually expressed as ecological status or management status of vegetation (species composition, habitat diversity, age and size classes of species) and desired soil qualities (conditions of soil cover, erosion, compaction, loss of soil productivity).

**DESIRED PLANT COMMUNITY (DPC):** The plant community that has been determined through a land use or management plan to best meet the plan's objectives for a site. A real, documented plant community that embodies the resource attributes needed for the present or potential use of an area, the desired plant community is consistent with the site's capability to produce the required resource attributes through natural succession, management intervention, or a combination of both.

**DEVELOPED RECREATION SITES:** Recreation sites that have facilities, structures, or developments such as drinking water, bathrooms, picnic tables, and developed campsites.

**DIRECT:** To be related exactly and without interruption to or from other sources.

**DISCHARGE:** The rate of flow or volume of water flowing in a stream at a give place or within a given period of time.

**DISCLIMAX:** A relatively stable ecological community that has displaced the climax community as a result of repeated or continuous disturbance by humans, domesticated animals, or natural events.

**DOCTRINE OF PRIOR APPROPRIATION:** Water rights doctrine adopted by most western states, giving the first person to use water from a stream the first right to such water. If the first user does not consume all of the water, then the second and later users can appropriate water for their needs.

**DRAINAGE:** A water source, such as a stream.

**ECOLOGICAL CONDITION (OR HEALTH):** See ECOLOGICAL STATUS.

**ECOLOGICAL SITE:** A distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community.



**ECOLOGICAL SITE CAPABILITY:** The highest ecological status an ecological site can attain given political, social, or economical constraints.

**ECOLOGICAL STATUS:** The present state of vegetation and soil protection of an ecological site in relation to the potential natural community for the site. Vegetation status is the expression of the relative degree to which the kind, proportions, and amounts of plants in a community resemble that of the potential natural community.

**ECOLOGICAL SUCCESSION:** An ecosystem's gradual evolution to a stable state. If, through the ability of its populations and elements, an ecosystem can absorb changes, it tends to persist and become stable through time.

**ECOREGION:** An hierarchical framework of ecological units formed by stratifying the earth into progressively smaller areas of increasingly uniform ecological potential for use in ecosystem management. Ecoregions would be the broadest application. Ecoregions are recognized by differences in gross physiology and global, continental, and regional climatic regimes.

**ECOSYSTEM:** A complete interacting system of organisms considered together with their environment.

**ECOSYSTEM MANAGEMENT:** (A) The skillful use of ecological, economic, social, and managerial principles in managing ecosystems to produce, restore, or sustain ecosystem integrity and desired conditions, uses, products, values, and services over the long term. (B) A process of land and resource management that emphasizes the care and stewardship of an area to ensure that human activities will be carried out to protect natural processes, natural biodiversity, and ecological integrity.

**ECOTONE:** A transition line or strip of vegetation between two communities having characteristics of both kinds of neighboring vegetation as well as those of its own.

**EDGE EFFECT:** The influence of two adjoining plant communities on the plants and animals between them.

**EFFECTIVENESS:** The ability to work towards achieving resource goals and objectives.

**EFFICIENCY:** The proportion of funding spent on program administration relative to funding spent on implementation.

**ENDANGERED SPECIES:** Any animal or plant species in danger of

extinction throughout all or a significant portion of its range as designated by the U.S. Fish and Wildlife Service under provisions of the Endangered Species Act.

**ENTITLEMENT ACRES:** Lands owned by the Federal Government that are included in the formulas used to calculate payments in lieu of taxes.

**ENTITLEMENT LANDS:** See ENTITLEMENT ACRES.

**ENVIRONMENTAL ASSESSMENT (EA):** A concise public document for which a federal agency is responsible. An EA serves (1) to briefly provide enough evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact; and to aid an agency's compliance with the National Environmental Policy Act when no EIS is needed; and (3) to facilitate preparation of an EIS when one is needed. See ENVIRONMENTAL IMPACT STATEMENT.

**ENVIRONMENTAL CONSEQUENCES:** A situation that naturally or logically follows as a result of an action. Commonly used in environmental impact statements for discussions about how the human environment, which includes the natural and physical environment and the relationship of people with that environment, is influenced by the government's actions.

**ENVIRONMENTAL IMPACT STATEMENT (EIS):** An analytical document that portrays potential impacts on the human environment of a particular course of action and its possible alternatives. Required by the National Environmental Policy Act (NEPA), an EIS is prepared for use by decisionmakers to weigh the environmental consequences of a potential decision.

**EPHEMERAL RANGE:** A rangeland that does not consistently produce enough forage to sustain a livestock operation but may briefly produce unusual volumes of forage to accommodate livestock grazing.

**EROSION:** the wearing away of land by water, wind, gravitation or other geologic agents. Natural erosion is a geologic process that occurs under natural conditions of climate and vegetation.

**ESTUARINE:** The environmental system of an estuary and those transitional areas that are consistently influenced or affected by water from an estuary.

**ESTUARY:** A body of water in which stream water mixes with and measurably dilutes sea water.

**EXOTIC SPECIES:** A species that is not native to the area where it is found.

**EXOTIC VEGETATION:** Plants that are not native to the region in which they are found.

**EXURBANITES:** People who relocate from urban to rural areas.

**EVAPOTRANSPIRATION:** The combined process by which water is transferred from the earth's surface (from soil, snow, water bodies, vegetation) to the atmosphere. See **TRANSPIRATION**.

**FAIR MARKET VALUE (FMV):** The amount in cash, or on terms reasonably equivalent to cash, for which in all probability something would be sold by a knowledgeable owner will but not obligated to sell to a knowledgeable purchaser who desires but is not obligated to buy.

**FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA):** The act that (1) sets out for the Bureau of Land Management standards for managing the public lands, including land use planning, sales, withdrawals, acquisitions, and exchanges; (2) authorizes the setting up of local advisory councils representing major citizens groups interested in land use planning and management; (3) established criteria for review of proposed wilderness area; and (4) provides guidelines for other aspects of public land management such as grazing.

**FEE YEAR:** The 12-month period covered by a fee charged by BLM and the Forest Service, March 1 through the last day in February of the following year.

**FENCELINE CONTRAST:** A visual contrast created by the combined effect of a fence and the grazing use on either side of it. Fenceline contrast usually increase when livestock use on one side of the fence radically differs from that on the other side.

**FIRE CLIMAX:** Any biotic community that maintains its vegetation composition and structure only as a result of periodic burning. Also see **DISCLIMAX**.

**FISHERY:** Habitat that supports some in the propagation and maintenance of fish.

**FLEXIBILITY:** A characteristic of a grazing management plan that allows it to accommodate changing conditions.

**FOLIAR COVER:** The percentage of ground covered by a downward vertical projection of the aerial portion of plant foliage,

excluding small openings in the canopy. Foliar cover is always less than canopy cover. Total foliar cover of all species may exceed 100 percent.

**FORAGE:** All browse and herbaceous growth available and acceptable to grazing animals or that may be harvested for feeding purposes. Forage includes pasture, rangelands, and crop aftermath. Whereas, feed includes forage, hay, and grains.

**FORAGE VALUE INDEX (FVI):** A derived index of the relative change in the previous year's average monthly rate per head for pasturing cattle on privately owned land in the West.

**FORB:** A herbaceous plant that is not a grass, sedge, or rush.

**FOREST PLAN:** See NATIONAL FOREST LAND AND RESOURCE MANAGEMENT PLAN.

**FULL FORCE AND EFFECT:** A process for allowing authorized officers to make decisions effective immediately and reduce resource damage. When a decision is in full force and effect, one wishing to appeal must either have the decision stayed by an administrative law judge or enjoined by a federal court judge. This process is allowed under the Department of the Interior's rules and makes a decision the Department's final decision.

**FUNCTIONING BUT SUSCEPTIBLE TO DEGRADATION:** Uplands or riparian-wetland areas that are properly functioning, but a soil, water, or vegetation attribute makes them susceptible to degradation and lessens their ability to sustain natural biotic communities. Uplands are particularly at risk if their soils are susceptible to degradation. Human activities, past or present, may increase the risks.

**GOAL:** The desired state or condition that a resource management policy or program is designated to achieve. Narrower and more specific than objectives, goals are usually not measurable and may not have specific dates by which they must be reached. Objectives are developed by first understanding one's goals.

**GRANGER-THYE ACT OF 1950:** An act that established direction for some aspects of National Forest System management, including authority for the Forest Service to assist with work on lands of other ownership, use of grazing fee receipts for rangeland improvements, authorization to issue grazing permits for terms up to 10 years, authority to participate in funding cooperative forestry and rangeland research, and establishing grazing advisory boards. NOTE: Section 403(f) of the Federal Land Policy and Management Act of 1976 removed authority for grazing



advisory boards as of December 31, 1985.

**GRASSLANDS:** Lands on which the vegetation is dominated by grasses, grasslike plants, or forbs. Nonforest land is classed as grassland if herbaceous vegetation constitutes at least 80 percent of the canopy cover, excluding tress. Lands that are not now grasslands but were originally or could become grasslands through natural succession may be classified as potential natural grasslands.

**GRAZING:** Consumption of native forage from rangelands or pastures by livestock or wildlife.

**GRAZING ADVISORY BOARD:** Groups that advise BLM on livestock grazing-related questions that arise in preparing allotment management plans and spending Range Betterment Funds. Consisting of from five to eight grazing permittees or lessees elected by their peers, grazing advisory boards typically represent BLM districts. In some states grazing advisory boards also administer and distribute grazing fee receipts returned to the states and counties but this function is authorized by state rather than federal regulation.

**GRAZING ALLOTMENT:** An area where one or more livestock operators graze their livestock. An allotment generally consists of federal land but may include parcels of private or state-owned land.

**GRAZING DISTRICT:** An administrative unit of BLM-managed rangelands established by the Secretary of the Interior under the Taylor Grazing Act of 1934. Grazing units are not the same as BLM administrative districts. See BLM DISTRICT.

**GRAZING FEE:** A charge, usually on a monthly basis, for grazing a specific kind of livestock.

**GRAZING FEE YEAR:** For fee collection purposes, from March 1 through the last day in February of the following year.

**GRAZING PERMIT/LICENSE/LEASE:** Official written permission to graze a specific number, kind, and class of livestock for a specified time period on a defined rangeland.

**GRAZING PREFERENCE:** The status of qualified grazing permittees acquired by grant, prior use, or purchase, that entitles them to special consideration over applicants who have not acquired preferences.

**GRAZING PRIVILEGES:** The use of public land for livestock grazing



under permits or leases.

**GRAZING REGIME:** See GRAZING SYSTEM.

**GRAZING REST:** Deferral of grazing on an area.

**GRAZING SEASON:** On federal lands, an established period for which grazing permits are issued.

**GRAZING SYSTEM:** A systematic sequence of grazing use and nonuse of an allotment to meet multiple use goals by improving the quality and amount of vegetation.

**GROUND COVER:** The percentage of material, other than bare ground, covering the land surface. Ground cover may include live and standing vegetation, litter, gravel, cobble, stones, boulders, and bedrock.

**GROWING SEASON:** Generally, the period of the year during which the temperature of vegetation remains high enough to allow plant growth. The most common measure of this period is the number of days between the last frost in the spring and the first frost in the fall.

**GUIDELINE:** A statement of recommended procedure for achieving an objective.

**HABITAT:** The natural abode of a plant or animal, including all biotic, climatic, and soil factors affecting life.

**HALOGETON:** A poisonous, succulent plant growing predominantly on disturbed sites in the Great Basin and Snake River plain. Cattle avoid this plant, but sheep eat it and die as a result.

**HEAD MONTH:** A month's use and occupancy of rangeland by one animal except for sheep or goats. A full head month's fee is charged for each month of grazing by adult animals if the grazing animal (1) is weaned, (2) is 6 months old or older when entering National Forest System land, or (3) will become 12 months old during the period of use. For fee purposes, a head month is equivalent to five weaned or adult sheep or goats or one cow, bull, steer, heifer, horse, or mule.

**HERBACEOUS:** Vegetation growth with little or no woody component. Nonwoody vegetation, such as graminoids and forbs.

**HERBIVORES:** Animals that subsist mainly or entirely on plants or plant materials.

**HERD MANAGEMENT AREA (HMA):** The area of wild horse or burro habitat covered by a herd management area plan.

**HERD MANAGEMENT AREA PLAN (HMAP):** Site-specific plans that define objectives for the HMA and prescribe actions to meet objectives. HMAPs outline details of burro or horse capture plans, adoption programs, and long-term population management. There are 91 HMAPs and funding allows for completion of approximately 10 plans per year.

**HORIZON:** See SOIL HORIZON.

**HOT DESERT:** Areas that are consistently dry, the evaporation equals or exceeds precipitation, have eight or more months of an average temperature above 50°, and the annual average temperature exceeds 65°F.

**IMPACTS:** The effect of one thing upon another. Impacts may be beneficial or adverse. See ENVIRONMENTAL CONSEQUENCES.

**IMPROVEMENT:** See RANGE BETTERMENT.

**IMPROVEMENT MAINTENANCE:** To preserve or keep in serviceable condition the structures built to facilitate the use of federal rangelands by livestock and wildlife.

**INCIDENTAL USE:** Inadvertent unauthorized use that results in little or no resource damage.

**INDEX:** A number used to express a ratio or show relative changes from a fixed point or base condition.

**INFILTRATION:** The downward entry of water into the soil or other material.

**INFRASTRUCTURE:** The set of systems and facilities that support a region or community's social and economic structures. Examples of such systems include transportation, education, medical service, communication, and fire and police protection.

**INTERDISCIPLINARY TEAM:** A team of varied land use and resource specialists formed to provide a coordinated, integrated information base for overall land use planning and management.

**INTERIOR BOARD OF LAND APPEALS (IBLA):** A Board within the Department of the Interior's Office of Hearings and Appeals that acts for the Secretary of the Interior in responding to appeals of decisions on the use and disposition of public lands and resources. Because IBLA acts for and on behalf of the Secretary

of the Interior, its decisions usually represent the Department's final decision but are subject to the Secretary's review and to appeal in federal court. See OFFICE OF HEARINGS AND APPEALS.

**INTERMITTENT STREAMS:** A stream or portion of a stream that flows only in direct response to precipitation. Such a stream receives little or no water from springs and no long-continued supply from melting snow or other sources. It is dry for a large part of the year.

**INVERSION:** The state of the atmosphere in which a layer of cool air is trapped near the earth's surface by an overlying layer of warm air. Serious air pollution problems may result from the limited mixing depth below the inversion.

**ISOLATED LAND:** Land of one ownership enclosed within the boundaries of another ownership.

**KEYSTONE SPECIES:** Species that provide a special habitat that other species depend on, without which, some wildlife would become severely depleted. Some examples of keystone species are beavers, who create ponds, and prairie dogs, who create burrows.

**KEY SPECIES:** (1) Species that, because of their importance, must be considered in a management program; or (2) forage species whose use shows the degree of use of associated species.

**KIND OF LIVESTOCK:** An animal species or species group such as sheep, cattle, goats, horses, or burros.

**LACUSTRINE:** Of or pertaining to a lake.

**LACTATING PERIOD:** Period during which animals secrete milk for feeding their young; nursing period.

**LAND TREATMENT:** A technique or action customarily applied to rehabilitate or improve a damaged or deteriorated area through one or more treatments.

**LAND USE PLAN:** Any document developed to define the kinds of use, goals and objectives, management practices and activities that will be allowed to occur on an individual or group of parcels of land.

**LANDFORM:** A discernible natural landscape that exists as a result of geological activity such as a plateau, plain, basin, or mountain.

**LEASE:** See GRAZING LEASE.

**LESSEE:** One who has specified rights or privileges under a lease. The terms written in the lease define the actual length of time and seasons a lease is good for.

**LEK:** An assembly area where birds, especially sage grouse, carry on display and courtship behavior.

**LITTER:** The uppermost layer of organic debris on the soil surface, essentially the freshly fallen or slightly decomposed vegetal material.

**LIVESTOCK:** Domestic animals, including beef cattle, sheep, goats, and horses kept or produced on farms or ranches.

**LIVESTOCK TRESPASS:** See UNAUTHORIZED USE.

**MACROINVERTEBRATES:** Invertebrates, including insects, crustaceans, mollusks, and freshwater earthworms, that can be seen with the unaided eye. In the aquatic environment macroinvertebrates provide a link in the food chain between microscopic, multicelled organisms and fish and are essential to the growth and production of fish. Because of their strict habitat requirements, macroinvertebrates are sampled to help determine aquatic habitat changes.

**MAJOR LAND RESOURCE AREA:** Geographically associated land resource units with particular patterns of soils, climate, vegetation types, water resources, and land uses.

**MANAGEMENT LEASE (PASTURE AGREEMENT):** A lease or agreement in which a permittee contracts with another party to graze that party's livestock on federal lands under the permittee's permit. BLM authorizes such agreements as long as permittees certify that they control the livestock.

**MEDITERRANEAN CLIMATE:** A subtropical dry summer climate, where the average temperature is above 50°F for eight or more months and the coldest month averages below 65°F. The summers are cloudless and dry, and 70 percent or more of the annual precipitation falls during the winter.

**MESIC:** Pertaining to environmental conditions that have medium moisture supplies rather than hygric (wet) or xeric (dry) conditions.

**MICROCLIMATE:** Local site-specific climatic conditions that differ from the general climate because of local differences in elevation and exposure.



**MORaine:** An accumulation of boulders, stones, and other earth debris carried and deposited by a glacier.

**MOTORIZED USE:** Recreation use in which driving is the main activity and an end unto itself. Examples include scenic drives in the family car or operating off-highway vehicles for fun.

**MULTIPLE USE:** A combination of balanced and diverse resource uses that considers long-term needs for renewable and nonrenewable resources, including recreation, rangeland, timber, minerals, watershed, and wildlife, along with scenic, scientific, and cultural values.

**NATIONAL ADVISORY BOARD COUNCIL (NABC):** No longer existing, this committee consisted of members of BLM district advisory boards selected to consider on a national basis legislation, regulations, and policy, and to advise the Secretary of the Interior on grazing management on public lands.

**NATIONAL FOREST MANAGEMENT ACT OF 1976 (NFMA):** The federal law that amended the Forest and Rangeland Renewable Resources Planning Act of 1974 to (1) require the incorporation of standards and guidelines in forest plans; (2) provide for public participation in developing and revising forest plans; (3) ensure that forest plans provide for multiple use and sustained yield, including coordination of outdoor recreation, rangeland, timber, watershed, wildlife and fish, and wilderness; (4) ensure that forest plans consider the economic and environmental aspects of various systems of renewable resource management; (5) ensure that forest plans provide for diversity of plan and animal communities; and (6) require that permits and contracts conform to forest plans.

**NATIONAL FOREST SYSTEM:** A system of federally managed forest, rangelands, and related lands consisting of the national forests, the national grasslands; land utilization projects administered under Title III of the Bankhead-Jones Farm Tenant Act; and other lands, waters, or interests therein that are administered by the Forest Service or designated for administration through the Forest Service as part of the system.

**NATIONAL GRASSLANDS:** A unit designated by the Secretary of Agriculture and permanently held by the Department of Agriculture under Title II of the Bankhead-Jones Farm Tenant Act. The main purposes of national grasslands are to promote the development of grassland agriculture and sustained yield management of the soil, water, forage, fish and wildlife, recreation, and timber resources; to demonstrate sound and practical principles of land use to groups to favorably influence nearby areas and economies;



to encourage user groups to assist in administering national grasslands; and to demonstrate management flexibility and innovation in the design and implementing of resource management activities.

**NATIONAL HISTORIC INTEREST:** Any of the places or sites on the National Register of Historic Places or having another national designation such as an area of critical environmental concern, national historic landmark, or research natural areas.

**NATIONAL HISTORIC LANDMARKS:** Site, buildings, structures, or objects of national historic or architectural significance that have been designated by the Secretary of the Interior. The National Historic Landmarks Program is administered by the National Park Service.

**NATIONAL NATURAL LANDMARKS:** Nationally significant natural (geologic and biological) sites and features that have been designated by the Secretary of the Interior. The National Natural Landmarks Program is administered by the National Park Service.

**NATIONAL WILD AND SCENIC RIVERS SYSTEM:** A system of nationally designated rivers and their immediate environments that have outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, and other similar values and are preserved in a free-flowing condition. The system consists of three types of streams: (1) Recreation--rivers or sections of rivers readily accessible by road or railroad that may have some development along their shorelines and may have undergone some impoundment or free of impoundments with shorelines or watersheds still largely undeveloped but accessible in places by roads, and (3) Wild--rivers or sections of rivers free of impoundments and generally inaccessible except by trails with watersheds or shorelines essentially primitive and waters unpolluted.

**NATIVE FOOD-SOURCE PLANTS:** Plants used as a traditional food source by Native Americans.

**NATIVE SPECIES (FISH):** Any species that naturally occurred within a given body of water.

**NEOTROPICAL MIGRATORY BIRDS:** Birds that breed in the United States and Canada and later migrate south to Central and South America, Mexico, and the Caribbean islands. These birds include almost half of the bird species that breed in the United States and Canada.

**NEPA ANALYSIS:** Analysis conducted during the preparation of

documents required under the National Environmental Policy Act, particularly environmental assessments and environmental impact statements.

**NONFUNCTIONING CONDITION:**

Riparian-wetland areas are considered to be in nonfunctioning condition when they don't provide adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows and thus are not reducing erosion, improving water quality, or other normal characteristics of riparian areas. The absence of certain physical attributes such as a floodplain where one should be are indicators of nonfunctioning conditions.

Uplands are considered to be in nonfunctioning condition when the existing vegetation and ground cover don't maintain soils capable of sustaining natural biotic communities.

See PROPERLY FUNCTIONING CONDITION and FUNCTIONING BUT SUSCEPTIBLE TO DEGRADATION.

**NONGAME WILDLIFE:** For the analysis in this environmental impact statement, all wildlife except big game, upland game, waterfowl, raptors, resident fish, and threatened and endangered species.

**NONMOTORIZED USE:** Any recreation use in which the driving of a vehicle is not an end unto itself. Vehicles may be used to carry recreationists and their equipment to the site or area where nonmotorized use occurs.

**NONPOINT-SOURCE POLLUTION:** Water pollution whose sources cannot be pinpointed but that can be best controlled by proper soil, water, and land management practices.

**NONUSE:** (1) absence of grazing use on current year's forage production. (2) lack of exercise, temporarily, of a grazing privilege on grazing lands. (3) an authorization to refrain, temporarily, from placing livestock on public rangelands without loss of preference for future conditions.

**NOXIOUS PLANT:** A plant that is undesirable because it's unwholesome to rangeland or animals.

**OBJECTIVE:** The planned results to be achieved within a stated time period. Objectives are subordinate to goals, more narrow in scope, and shorter in range. Objectives must specify time periods for completion, and products or achievements that are

measurable.

**OFF-HIGHWAY VEHICLE:** Any vehicle that is not permitted on a highway. Including dune buggies, four-wheelers, and dirt bikes, these vehicles are often driven for recreational purposes.

**OFFICE OF HEARINGS AND APPEALS:** A division of the Department of the Interior that, in cooperation with the Office of the Solicitor, is responsible for all of the Department's legal affairs. The Office of Hearings and Appeals has two subdivisions, the Board of Land Appeals and the Hearings Division.

**OPERATOR:** One who is in the business of buying, raising, and selling livestock.

**OPPORTUNISTIC PLANTS:** Plants adapted for surviving in variable, unpredictable, or transient environments.

**OROGRAPHIC EFFECT:** The effect of mountains on the passing flow of air, which may cause its lifting or diverting, creation of clouds, and increases in leeward precipitation.

**OUTWASH PLAIN:** A plain formed from mineral material that has been carried and sorted by water from higher to lower elevations.

**OVERSTORY:** The upper canopy or canopies of plants, usually referring to trees, shrubs, and vines.

**PACFISH:** An ecosystem approach to managing anadromous fish habitat that the Bureau of Land Management and the Forest Service are developing to address the decline of this type habitat.

**PALATABILITY:** The relish with which a particular plant species or part is consumed by an animal.

**PALEONTOLOGICAL RESOURCES (FOSSILS):** The physical remains of plants and animals preserved in soils and sedimentary rock formations. Paleontological resources are important for understanding past environments, environmental change, and the evolution of life.

**PARTICULATE MATTER:** Fine liquid or solid particles emitted into the atmosphere, such as dust, smoke, mist fumes, or smog.

**PASSERINE BIRDS:** Birds of the order Passeriformes, which includes perching birds and songbirds such as blackbirds, jays, finches, warblers, and sparrows. More than half of all known birds belong to this order.

**PASTURE:** (1) Land that is separated from other areas by a fence or natural barriers. (2) The act of letting livestock graze land for forage.

**PASTURE AGREEMENTS:** See MANAGEMENT LEASES.

**PAYMENTS-IN-LIEU-OF-TAXES (PILT):** Payments made by the federal government to local government units (usually counties) where certain federal lands are located to compensate these governments for property taxes the federal government does not pay for the federal lands.

**PERENNIAL STREAM:** A stream that flows throughout the year for many years.

**PERMEABILITY, SOIL:** The ease with which gases, liquids (water), or plant roots penetrate or pass through a bulk mass of soil or a layer of soil. Since different soil horizons vary in permeability, the particular horizon under question should be designated.

**PERMIT:** See GRAZING PERMIT.

**PERMITTEE:** One who holds a permit to graze livestock on state, federal, or certain privately-owned lands.

**PERENNIAL PLANT:** A plant that has a life cycle of 3 or more years.

**pH:** A measure of acidity or hydrogen ion activity. Neutral is pH 7.0. All values below 7.0 are acid, and all above 7.0 are alkaline.

**PEREATOPHYTE:** A plant that absorbs its water from a permanent supply in the ground.

**PLANT SUCCESSION:** See ECOLOGICAL SUCCESSION.

**POTENTIAL NATURAL COMMUNITIES (PNC):** The stable biotic community that would become established on an ecological site if all successional stages were completed without human interference under present environmental conditions.

**PRESCRIBED BURN:** A controlled fire used to meet such management goals as reducing shrub and tree invasion or changing species composition toward a more desirable forage.

**PRICES PAID INDEX (PPI):** An index of prices paid by farmers for commodities and services, interest, taxes, and farm wages, as



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collected and published by the Statistical Reporting Service in Agricultural Prices, as compared to a specific base period equal to 100.

**PRIMARY CONTACT RECREATION:** Any recreation activity involving prolonged and intimate contact with the water, such as swimming, water skiing, surfing, kayaking, tubing, and wading. See **SECONDARY CONTACT RECREATION**.

**PRIOR USE:** Grazing use preceding a specified time such as the 5-year period immediately preceding June 28, 1934.

**PRIVATE GRAZING LAND LEASE RATE INDEX (PGLLRI):** See **FORAGE VALUE INDEX**.

**PRIVILEGE:** The benefit or advantage enjoyed by a person or company beyond the common advantage of other citizens to graze livestock on federal lands. Privilege may be created by permit, license, lease, or agreement.

**PROGRAM:** The disciplines in the field of land use planning that are organized within the BLM and Forest Service to contribute to the management of public land. These disciplines include economics, rangeland, wildlife biology, botany, ecology, realty, law, and communication.

**PROGRAM EFFICIENCY:** How well a program is operated. Program efficiency is often judged on its budget, staffing, schedule and completion of projects, training, and how well a variety of programs work together on one or more projects.

**PROHIBITED ACTS:** Actions not allowed on federal lands.

**PROPERLY FUNCTIONING CONDITION:**

Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is influenced by geomorphic features, soil, water, and vegetation.



Uplands function properly when the existing vegetation and ground cover maintain soil conditions capable of sustaining natural biotic communities. The functioning condition of uplands is influenced by geographic features, soil, water, and vegetation.

Also see NONFUNCTIONING CONDITION and FUNCTIONING AT RISK.

**PUBLIC LAND LAW REVIEW COMMISSION (PLLRC):** The Commission established by Public Law 88-606 on September 19, 1964, to study existing laws and procedures relating to the administration of federal lands.

**PUBLIC LANDS:** As defined in Public Law 94-79, public lands are any land and interest in land outside of Alaska owned by the United States and administered by the Secretary of the Interior through BLM. In common usage, public lands may refer to all federal land no matter what agency has responsibility for its management.

**PUBLIC PARTICIPATION:** A procedure allowing citizens as individuals or interest groups to review proposed government procedures or information and offer suggestions, comments, and criticism, and help identify the issues and concerns associated with federal land management.

**PUBLIC RANGELANDS IMPROVEMENT ACT OF 1978 (PRIA):** An act that defines the current grazing fee formula. The formula is based on a combination of fair market value, beef prices, and production costs.

**RAILING:** A mechanical vegetation treatment to improve rangeland for livestock grazing in which railroad rails connected by chain are extended between two tractors and dragged over the terrain to uproot brush and small trees such as pinyon and juniper. See CHAINING.

**RANGE OR RANGELAND:** Rangelands, forests and woodlands, and riparian zones that support an understory or periodic cover of herbaceous or shrubby vegetation amenable to rangeland management principles or practices.

**RANGE BETTERMENT FUND:** In this EIS, the money collected from livestock grazing on the federal lands and used for rangeland improvements. BLM actually calls these funds Range Improvement Funds and uses them solely for labor, materials, and final survey and design of projects. The Forest Services calls these funds Range Betterment Funds and uses them for planning and building rangeland improvements.

**RANGE CONDITION:** The current productivity of a rangeland relative to what it could naturally produce.

**RANGE IMPROVEMENT FUND:** See RANGE BETTERMENT FUND.

**RANGE FORAGE INDEX (RFI):** See FORAGE VALUE INDEX.

**RANGE IMPROVEMENT PERMIT:** For BLM an authorization to build a rangeland improvement on public land, synonymous with the Forest Service's term permit modification.

**RANGE IMPROVEMENT PROJECT:** See RESOURCE IMPROVEMENT.

**RANGELAND:** A kind of land on which the native vegetation, climax or natural potential consists predominately of grasses, grasslike plants, forbs, or shrubs. Rangeland includes lands revegetated naturally or artificially to provide a plant cover that is managed like native vegetation. Rangelands may consist of natural grasslands, savannas, shrublands, most deserts, tundra, alpine communities, coastal marshes, and wet meadows.

**RANGELAND IMPROVEMENT:** See RESOURCE IMPROVEMENT.

**RANGELAND PRACTICES:** Practices that improve or maintain basic soil and vegetation resources. Rangeland practices typically consist of watershed treatments (planting, seeding, burning, rest, vegetation manipulation, grazing management) in an attempt to establish desired vegetation species or communities.

**RANGE USER:** A person or organization having a permit to graze livestock on federal lands.

**RAPTORS:** Birds of prey.

**RECORD OF DECISION:** A document signed by a responsible official recording a decisions that was preceded by the preparation of an environmental impact statement.

**RELICT:** A remnant or fragment of the vegetation of an area that remains from a former period when it was more widely distributed.

**RESIDENT FISH SPECIES:** Any fish species naturally occurring, either presently or historically, in any ecosystem of the United States.

**RESEARCH NATURL AREA (RNA):** a physical or biological unit of the public lands designated to protect specific natural conditions. On RNAs, activities such as grazing or vegetation manipulation are prohibited if they would harm the values being protected.

**RESIDUAL PLANT COVER:** Standing herbaceous vegetation that has cured and become decadent. When these plants fall, they become litter.

**RESOURCE IMPROVEMENT:** Any activity or program on or relating to the public lands that is designed to improve production of forage, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, or provide habitat for livestock and wildlife. Resource improvements may be structural or nonstructural.

**Structural Improvement:** An improvement requiring placement or construction to facilitate the management or control the distribution and movement of animals. Such improvement may include fences, wells, trough, reservoirs, pipelines, and cattleguards.

**Nonstructural Improvement:** A practice or treatment that improves resource condition or production for multiple use. Such improvements may include seedings; chemical, mechanical, and biological plant control; prescribed burning; water spreaders; pitting; chiseling; and contour furrowing.

**RESOURCE MANAGEMENT PLAN (RMP):** A BLM planning document, prepared in accordance with Section 202 of the Federal Land Policy and Management Act, that presents systematic guidelines for making resource management decisions for a resource area. Based on an analysis of an area's resources, its existing management, and its capability for alternative uses, RMPs are issue oriented and developed by an interdisciplinary team with public participation.

**REST:** See GRAZING REST.

**RILL EROSION:** Removal of soil by running water forming shallow channels that can be smoothed out by normal cultivation.

**RIPARIAN:** Pertaining to or situated on or along the bank of a stream or other body of water.

**RIPARIAN ECOSYSTEM:** A transition between an aquatic ecosystem and an adjacent terrestrial ecosystem identified by soil characteristics or distinctive vegetation communities that require free or unbound water. Riparian ecosystems often occupy distinctive landscapes, such as floodplains or alluvial benches.

**RIPARIAN-WETLAND AREAS WITH MANAGEMENT OBJECTIVES:** Areas where BLM has established specific riparian-wetland objectives and has or will implement management actions to meet the objectives.

**RIPARIAN-WETLAND AREAS WITHOUT MANAGEMENT OBJECTIVES:** Areas that BLM is managing, but does not have specific objectives for riparian-wetland management or no specific management at all.

**RIVERINE:** Pertaining to or resembling a river.

**RUNOFF:** The portion of the precipitation of a drainage area that flows from the area.

**RUNOFF EVENT:** Any precipitation that results in runoff.

**SAFE RELEASE OF WATER:** A process in which water is discharged to ground water, surface water bodies, or overland flow in a manner that minimizes harmful consequences to ecosystem functions and values.

**SCOPING:** An early and open process for determining the scope of issues to be addressed in an EIS and for identifying the significant issues related to a proposed action.

**SEASON OF USE:** The time during which livestock grazing is permitted on a given range area, as specified in the grazing permit.

**SECONDARY CONTACT RECREATION:** Recreation activity in which contact with water is either incidental or accidental, such as fishing, boating, and walking close to the shore. See PRIMARY CONTACT RECREATION.

**SECTION 3 LANDS:** Public lands within a grazing district administered by BLM under Section 3 of the Taylor Grazing Act of 1934. BLM authorizes livestock grazing on these lands by issuing permits to permittees. Section 3 lands make up the vast majority of BLM-administered lands.

**SECTION 15 LANDS:** Public lands outside a grazing district administered by BLM under Section 15 of the Taylor Grazing Act of 1934. BLM authorizes livestock grazing on these lands by issuing licenses to licensees. Section 15 lands tend to be more isolated parcels that are harder to manage than Section 3 lands.

**SEDIMENTARY ROCK:** Rock formed from sediments or from transported fragments deposited in water.

**SEDIMENT YIELD:** The amount of sediment removed from a watershed over a specified period, usually expressed as tons, acre-feet, or cubic yards of sediment per unit of drainage area per year.

**SEMIARID REGION:** A region where precipitation is limited and



whose plant life typically consists of short, drought-resistant grasses. Semiarid regions are highly susceptible to severe drought.

**SENSITIVE AREAS:** In this EIS, areas sensitive to livestock grazing where such grazing would not be allowed under the Environmental Enhancement alternative. Such areas include designated wilderness, wilderness study areas, developed recreation sites, threatened and endangered species habitat, and areas of national and historic cultural significance.

**SENSITIVE SPECIES:** All species that are under status review, have small or declining populations, or live in unique habitats. May also be any species needing special management. Sensitive species include threatened, endangered, and proposed species as classified by the Fish and Wildlife Service. In the Forest Service, sensitive species are designated by regional foresters.

**SERIAL:** Pertaining to the successional stages of biotic communities.

**SERIAL (SUCCESSIONAL) COMMUNITY:** One of a series of biotic communities that follow one another in time on any given ecological site.

**SHEET EROSION:** The removal of a fairly uniform layer of soil or materials from the land surface by the action of rainfall and runoff water.

**SHRUBSTEPPE:** See SOUTHWEST SHRUBSTEPPE.

**SINGLE FEE:** One fee for grazing on both BLM- and Forest Service-administered land.

**SOIL HORIZON:** A layer of soil or soil material roughly parallel to the land surface and differing from adjacent, genetically related layers in physical, chemical, and biological properties or characteristics, such as color, structure, texture, consistence, degree of acidity or alkalinity, and kinds and numbers of organisms present.

**SOIL MOISTURE:** The water content stored in a soil.

**SOIL PRODUCTIVITY:** A soil's capability of producing a specified plant or sequence of plants under a specified system of management.

**SOIL PROFILE:** A vertical section of the soil from the surface through all its horizons.



**SOIL STRUCTURE:** The physical constitution of soil material as expressed by size, shape, and the degree of development of primary soil particles and voids into naturally or artificially formed structural units.

**SOIL TEXTURE:** The relative proportions of the three size groups of soil grains (sand, silt, and clay) in a mass of soil.

**SOUTHWEST SHRUBSTEPPE:** A vegetation type occupying the semidesert grasslands of southeast Arizona, southern New Mexico, and the Chihuahuan Desert.

**SPAWNING GRAVELS:** Stream-bottom gravel where fish deposit and fertilize their eggs. The covering of these gravels with silt can block the supply of oxygen to the eggs or serve as a cementing agent to prevent fry from emerging.

**SPECIAL STATUS SPECIES:** Plant or animal species listed as threatened, endangered, candidate, or sensitive by federal or state governments. See also SENSITIVE SPECIES, KEYSTONE SPECIES, and KEY SPECIES.

**STANDARD:** Minimum acceptable level used to measure success in achieving an objective.

**STAY:** The deferral of a decision pending an administrative review.

**STEWARDSHIP:** An individual's responsibility to manage natural resources on public land.

**STOCKING:** The act of placing livestock on rangeland.

**STOCKING RATE:** The number of specific kinds and classes of animals grazing or using a unit of land for a specified time. Not the same as carrying capacity.

**STOCKWATER DEVELOPMENT:** New or improved livestock watering sources on the rangeland, such as wells, ponds, and springs, together with storage and delivery system.

**STORAGE (OF SOIL MOISTURE):** The process in which water is retained in the soil for use by plants and soil organisms or accumulates to recharge ground water or discharge to surface water.

**STREAM ENERGY:** The potential of flowing water, at a given time and place, to detach and transport solid particles.

**STRUCTURAL DIVERSITY:** The diversity of the composition, abundance, spacing, and other attributes of plants in a community.

**SUCCESSION:** See ECOLOGICAL SUCCESSION.

**SUITABILITY:** The adaptability of a particular plant or animal species to a given ecological site.

**SUITABILITY CRITERIA:** In protecting a site from resource damage, the standards for judging whether a rangeland should be accessible to a specific kind of animal.

**SUITABILITY THRESHOLDS:** A level, point, or value above which rangeland is not accessible to a kind of animal without causing resource damage. Above the threshold something is true or will take place. Below it something is not true or will not take place.

**SUITABLE RANGE:** Rangeland that is accessible to a specific kind of animal and that can be grazed on a sustained yield basis without damage to the resource.

**SUMMER RANGE:** A type of rangeland that is accessible to livestock and normally grazed during the summer grazing season.

**SUPPLEMENTAL FEED:** Nutritional additives (salt, minerals, vitamins, protein blocks) or harvested forage given to livestock on federal rangelands to correct dietary deficiencies.

**SUPPLEMENTAL BILLING NOTICE:** A replacement or additional billing notice.

**SUSCEPTIBLE TO DEGRADATION:** See FUNCTIONING BUT SUSCEPTIBLE TO DEGRADATION. Also see PROPER FUNCTIONING CONDITION and NONFUNCTIONING CONDITION.

**SUSPENDED NONUSE:** Forage from BLM-administered land that at one time could be grazed by livestock, but was later suspended from grazing because an evaluation showed that the rangeland could not support that level of grazing. Although suspended forage cannot be used, it remains as part of the total number of animal unit months of forage on grazing permits.

**SUSTAINED USE (PRODUCTION):** The continuation of livestock grazing at a uniform level while maintaining a healthy desired plant community.

**SUSTAINED YIELD:** The continuation of a healthy desired plant

community.

**TAKE:** As defined by the Endangered Species Act, "to harass, harm, pursue, hunt, shoot, wound, kill, capture, or collect, or attempt to engage in any such conduct."

**TAKING:** In Anglo-American legal tradition, the right of eminent domain--the right of the sovereign or government to take private property to meet public needs. The takings clause of the Fifth Amendment to the U.S. Constitution prohibits the taking of private property for public use without just compensation. But recently, under the concept of regulatory taking, landowners have been demanding that the government pay them for losses resulting from regulations that have reduced profits from the use of their land.

**TAYLOR GRAZING ACT OF 1934 (TGA):** The Act of June 28, 1934, providing for the regulation of grazing on the public lands (excluding Alaska) to improve rangeland conditions and stabilize the western livestock industry. The law permitted 80 million acres to be placed into grazing district to be administered by the Department of the Interior's Division of Grazing (later renamed the Grazing Service). The General Land Office was responsible for administering grazing on public lands outside the districts. TGA conferred broad powers on the Secretary of the Interior to do all things needed for the preservation and use of the unreserved public lands of the United States.

**TENURE:** The act, right, or term of holding landed property.

**TERM PERMIT:** A document authorizing grazing for a stated number of years (usually 10) as contrasted to an annual or temporary permit.

**THREATENED SPECIES:** Any plant or animal species likely to become endangered within the foreseeable future throughout all or a part of its range as designated by the U.S. Fish and Wildlife Service under the Endangered Species Act. See **ENDANGERED SPECIES**.

**THREATENED AND ENDANGERED RECOVERY:** Improvement in the status of a threatened or endangered species to the point that it no longer needs to be listed.

**THREATENED AND ENDANGERED RESTORATION:** See **THREATENED AND ENDANGERED RECOVERY**.

**TOTAL DISSOLVED SOLIDS:** Salt--an aggregate of carbonates, bicarbonates, chlorides, sulfates, phosphates, and nitrates of calcium, magnesium, manganese, sodium, potassium, and other

cations that form salts. High TDS solutions can change the chemical nature of water, exert varying degrees of osmotic pressure, and often become lethal to aquatic life.

**TOTAL SUSPENDED PARTICULATES:** Any particles in the atmosphere that are less than roughly 50 micrometers in diameter and that settle slowly, including droplets, dust, fumes, pollen, sand, and soot.

**TRADITIONAL LIFEWAY VALUE:** A value that important for maintaining a specific group's traditional system of religious belief, cultural practice, or social interaction. A group's shared traditional lifeway values are abstract, nonmaterial, ascribed ideas that cannot be discovered except through discussions with members of the group. These values may or may not be closely associated with definite locations.

**TRAILING:** (1) Controlled directional movement of livestock. (2) Natural trailing is the habit of livestock or wildlife repeatedly treading in the same line or path.

**TRAILING PERMIT:** See CROSSING PERMIT.

**TRANSPIRATION:** The photosynthetic and physiological process by which water in plants is transferred as water vapor to the atmosphere.

**TRESPASS:** An unauthorized use of federal lands or resources. See UNAUTHORIZED USE.

**UNAUTHORIZED USE:** Any use of the public land not authorized or permitted.

**UNDERSTORY:** Plants growing beneath the canopy of other plants, usually grasses, forbs, and low shrubs.

**UNDEVELOPED RECREATION SITE:** A often used outdoor recreation site that has no facilities, structures, or improvements, such as picnic tables, restrooms, or water fountains. Examples might include a primitive campsites with nothing more than firerings or popular swimming holes or beaches. See DEVELOPED RECREATION SITE.

**UNGULATES:** Hoofed animals, including ruminants but also horses, tapirs, elephants, rhinoceroses, and swine.

**UNSUITABLE RANGE:** Rangeland that is not accessible to a specific kind of animal and that cannot be grazed on a sustained yield basis without damaging the resource.



**UPLAND GAME:** A term used in wildlife management to refer to hunted animals that are neither big game nor waterfowl. Upland game includes such birds as grouse, turkey, pheasant, quail, and dove, and such mammals as rabbit and squirrel.

**UPLANDS:** Land at a higher elevations than the alluvial plain or low stream terrace; all lands outside the riparian-wetland and aquatic zones.

**UTILIZATION:** The proportion of a year's forage production that is consumed or destroyed by grazing animals.

**VACANT ALLOTMENT:** An allotment for which a grazing permit or license has not been issued.

**VARIABLE FEE:** A grazing fee based on local characteristics such as topography, season of grazing use, quality or amount of forage, and distance between water sources. A variable fee may also apply to class and age of grazing livestock in relationship to a base unit of one cow without calf.

**VEGETATION:** Plants in general, or the sum total of the plant life above and below the soil surface in an area.

**VEGETATIVE REPRODUCTION:** Production of new plants by any asexual methods, such as root networks, stolons, and rhizomes.

**VIGOR:** The capacity for natural growth and survival of plants and animals.

**WARM-SEASON SPECIES:** Plants whose major growth occurs during the spring, summer, or fall, and are usually dormant in winter. See COOL-SEASON SPECIES.

**WATER-BASED ALLOTMENT:** An allotment whose permit is based on the ownership of livestock water sources instead of land, with grazing use dependent upon each source.

**WATER QUALITY STANDARDS:** Standards for water quality established under Section 303 of the Clean Water Act. The water quality standards program is covered by an implementing regulation in 40 CFR 131. A water quality standard is a rule or law consisting of three elements: (1) the designated use (or uses) to be made of the water body or segment; (2) the water quality criteria needed to protect that use (or uses); and (3) an antidegradation policy. Standards are to protect the public health or welfare, improve water quality, and serve the purpose of the Clean Water Act. Criteria are usually established thresholds that when violated are intended to reveal harm to beneficial uses of water.



**WATERSHED:** The total area above a given point on a waterway that contributes runoff water to the streamflow at that point.

**WATER YIELD:** The runoff from a watershed, including groundwater outflow, which amounts to precipitation minus evapotranspiration. See EVAPOTRANSPIRATION.

**WEIGHTED AVERAGE:** An average in which each component is adjusted by a factor that reflects its relative importance to the whole; obtained by multiply each component by its assigned weight, adding the products, and dividing the sum of the weights.

**WESTWIDE:** A term used in this EIS to refer to the 17 western states in which livestock graze BLM- and Forest-Service administered lands. These states are Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming

**WETLANDS:** Permanently wet or intermittently water-covered areas, such as swamps, marshes, bogs, muskegs, potholes, swales, and glades.

**WILD HORSES AND BURROS (WILD FREE-ROAMING HORSES AND BURROS):** All unbranded and unclaimed horses and burros using public lands as all or part of their habitat.

**WILDERNESS AREA:** An area designated by Congress where the earth and its community of life are untrammelled by humans, where people are visitors who do not remain. An area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, that is protected and managed to preserve its natural conditions and that (1) generally appears to have been affected primarily by the forces of nature, with human imprints substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres of land or is large enough to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**WILDERNESS STUDY AREA:** (1) On BLM-managed lands, a roadless area that has been inventoried (but not designated by Congress) and found to have wilderness characteristics as described in Section 603 of the Federal Land Policy and Management Act of 1976 and Section 2(c) of the Wilderness Act of 1964. (2) On National Forest System lands, a roadless area designated by Congress for further evaluation and recommendation by the Forest Service.

**WOODY:** Consisting of wood such as trees or bushes.

**XERIC:** Of, characterized by, or adapted to an extremely dry habitat.

**XEROPHYTIC:** Growing in and adapted to an environment deficient in moisture.

**YEAR-LONG GRAZING:** Continuous grazing for a calendar year.

#### ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
AML	Appropriate Management Level
AMP	Allotment Management Plan
AUM	Animal Unit Month
BLM	Bureau of Land Management
BPI	Beef Price Index
CI	Combined Index
CFR	Code of Federal Regulations
CRMAP	Coordinated Resource Management Activity Plan
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ERS	Economic Research Service
FLPMA	Federal Land Management and Policy Act
FS	Forest Service
FVI	Forage Value Index
FWS	U.S. Fish and Wildlife Service
GAO	U.S. General Accounting Office
GFTG	Grazing Fee Task Group
HM	Head Month
HMP	Habitat Management Plan
HMA	Herd Management Area
NABC	National Advisory Board Council
NASS	National Agricultural Statistics Service
NFMA	National Forest Management Act of 1976
NHPA	National Historical Preservation Act
NPLAC	National Public Lands Advisory Council
OHP	U.S. Department of the Interior, Office of Hearings and Appeals
PGLLRI	Private Grazing Land Lease Rate Index
PILT	Payment-in-Lieu-of-Taxes
P.L.	Public Law
PLLRC	Public Land Law Review Commission
PPI	Prices Paid Index
PRIA	Public Rangeland Improvement Act
RFI	Range Forage Index
RIF	Range Improvement Fund
RMP	Resource Management Plan
T&E	threatened and endangered
TGA	Taylor Grazing Act of 1934
U.S.C	United States Code
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
WLGs	Western Livestock Grazing Survey
WSA	Wilderness Study Area

## **Rangeland Reform '94 Draft Environmental Impact Statement**

### **Executive Summary**

#### **Chapter 1**

#### **Purpose and Need**

##### *Introduction*

Rangeland Reform '94 is a proposal for managing 270 million acres of federal rangeland administered by the Bureau of Land Management (BLM) and the Forest Service. The proposal was developed cooperatively by the U.S. Department of the Interior and the U.S. Department of Agriculture.

Rangelands help shape the character of the American West. They provide habitat for wildlife and natural resources for the economic and spiritual well-being of people and communities. They are relied upon for traditional uses such as livestock grazing and for meeting the growing demands for recreation and tourism.

The condition of rangelands has been debated for at least the past decade. The Secretaries of the Interior and Agriculture recognize that management changes since the 1930s have brought improvements. But there is still much progress to be made.

Rangeland ecosystems are not functioning properly in many areas of the West. Riparian areas are widely depleted and some upland areas produce far below their potential. Soils are becoming less fertile.

Rangeland Reform '94 is a call to take a broader view of how public resources are used and managed. It asks to restore the health of the land, not just for its own sake, but because the prosperity and quality of life of the West depend on it.

The purpose of rangeland reform is to carry out a rangeland management program that improves ecological conditions, while providing for sustainable development on lands administered by the two agencies. These goals are to:

- Manage public rangelands in a manner that is compatible with principles of ecosystem management.
- Accelerate the restoring and improving of public rangelands.
- Streamline BLM and Forest Service grazing administration and reduce administrative costs.

- Establish a fair and equitable grazing fee.

It is equally important that these reforms occur in a manner that is sensitive to the needs of local communities dependent upon livestock grazing of public lands.

Rangeland Reform would not ultimately be successful if it causes unnecessary or unacceptable impacts on these communities.

Rangeland Reform '94 would meet these needs through policy and regulation changes in three key areas:

1. Development of BLM standards and guidelines for rangeland ecosystems.
2. Changes in BLM and Forest Service grazing administration regulations.
3. Changes in the grazing fee formula.

BLM's main authority to manage public rangelands is established by the Federal Land Policy and Management Act of 1976 (FLPMA), the Taylor Grazing Act (TGA) of 1934, and the Public Rangelands Improvement Act of 1978 (PRIA). Through this authority, BLM is responsible for managing resources on public lands in a manner that maintains or improves them.

The Forest Service's primary authority for managing National Forest System land is established by the Organic Administration Act of 1897, Bankhead-Jones Farm Tenant Act of 1937, Granger-Thye Act of 1950, Multiple-Use Sustained-Yield Act of 1960, Federal Land Policy and Management Act of 1976, and Public Rangelands Improvement Act of 1978. The National Forest Management Act of 1976 (NFMA) gives the Forest Service authority and direction to provide for the multiple use and sustained yield of products and services from the National Forest System.

#### *Administrative Actions*

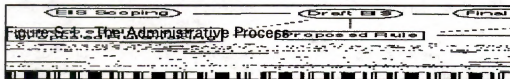
The proposed changes in rangeland policies and regulations are being evaluated and implemented through related administrative actions. One action is preparation of the Rangeland Reform '94 Draft Environmental Impact Statement (EIS). The other actions are preparation of separate BLM and Forest Service rulemakings. ("Rulemaking" is the process for developing or changing federal regulations.)

The Rangeland Reform '94 EIS presents an analysis of the reform proposal and several alternatives, a broad, national-level analysis that will serve as a basis for later regional or site-specific analyses that may be needed to implement the selected rangeland management program.



After a 90-day comment period on the draft EIS, the BLM and Forest Service will publish a final EIS that incorporates comments and refines the environmental analysis. After the EIS is published, the Secretaries of the Interior and Agriculture will issue separate records of decision. The records of decision and rulemakings are separate because the agencies operate under different regulatory authorities.

The rulemaking process began in August 1993 when the agencies published the Rangeland Reform '94 proposal as Advance Notices of Proposed Rulemaking. This process will continue through publication of proposed rules and final rules. The proposed rules are being issued for comment at the same time as the draft EIS. The final rules will be published after the Secretaries review comments on the proposed rules and draft EIS, and issue the final EIS and records of decision. See Figure S-1.



#### *Scoping and Use of Public Comments*

An extensive public participation process was conducted to help define the issues and alternatives to be addressed in the draft EIS. The Secretary of the Interior, with the cooperation of the Department of Agriculture, held five Grazing Town Hall meetings in the West during the spring of 1993. Thousands attended. The agencies then conducted a scoping period between July 13 and October 20, 1993, on the draft EIS and solicited comments on the Advance Notice of Proposed Rulemaking. Comments were received from more than 8,000 persons and organizations.

The public comments substantially influenced the draft EIS. Three of the five rangeland management alternatives were developed in response to issues and comments raised during scoping. Four of the seven grazing fee alternatives were derived from public comments.

The rangeland management alternatives are:

- (1) Current Management
- (2) BLM-Forest Service Proposed Action
- (3) Livestock Production
- (4) Environmental Enhancement
- (5) No Grazing

The fee alternatives are:

- (1) Current Fee Formula
- (2) Modified Public Rangelands Improvement Act (PRIA) formula
- (3) BLM-Forest Service Proposed Action
- (4) Regional Fees
- (5) Federal Forage Fee
- (6) PRIA with Surcharges
- (7) Competitive Bidding

The EIS analyzes the impacts of these alternatives, including an analysis of each management alternative combined with a high, moderate and low fee option.

As a result of public comment, the Proposed Action in the draft EIS has been modified from the initial reform proposal released in August 1993, as follows:

- BLM standards and guidelines for rangeland ecosystems would be developed at the state or regional level with public involvement. They must meet published national requirements and be developed within 18 months of the Secretary's record of decision. If regional standards and guidelines are not in place after 18 months, fallback standards and guidelines would take effect.
- Multiple resource advisory councils would be established at the local level and provide a mechanism for meaningful, issue-specific public involvement including the development of state or regional standards and guidelines.
- The Proposed Action would establish 1996 as the base year for the forage value index. The forage value index would not be used to annually adjust the fee in response to market conditions until the year 1997. This proposed rule would establish the 1995 grazing fee at \$2.75, and the 1996 grazing fee at \$3.50. Thereafter the fee would be calculated, except as provided below, using the base value of \$3.96 multiplied by the revised forage value index.

#### *Issues Not Addressed*

Most of the issues raised during scoping are incorporated in alternatives or addressed as impacts in the EIS. But, several issues are not addressed because they are beyond the scope of the document or did not meet the basic purposes of rangeland reform.

The following are examples of issues not addressed in the EIS:

- Broaden the scope of the document to include state agencies, the U.S. Fish and

Wildlife Service, and other federal agencies.

- Overhaul the wild horse and burro program and include it in the EIS.
- Have states and counties manage federal rangelands.
- The National Research Council published a report in January 1994 entitled *Rangeland Health, New Methods to Classify, Inventory and Monitor Rangelands* (National Research Council, 1994). This document was released as the Rangeland Reform EIS was going to print, too late to be incorporated into the impact analysis or alternatives. However, a preliminary review of the National Research Council publication seems to be consistent with many of the proposals and the analysis contained in this EIS. The BLM and Forest Service intend to thoroughly review this recent report and consider the information it contains during the preparation of the Final EIS. Public comment on the information in the report is invited.

#### *Analysis Area*

BLM management policies described in the EIS would apply to all the rangelands it manages. These rangelands occur in 15 western states. Forest Service management policies would apply to all national forests and grasslands.

The grazing fee policies described in the EIS would apply to the 17 western states where BLM and the Forest Service manage rangelands. They would not apply to the eastern states because BLM does not manage rangelands there and the fee is determined by fair market value or competitive bid on national forests and grasslands.

**Executive Summary**  
**Chapter 2**  
**Description of Alternatives**

The draft EIS analyzes five rangeland management alternatives and seven fee alternatives. The management alternatives address nonfee aspects of the BLM and Forest Service rangeland management programs. For BLM these aspects include changes to policy regulations controlling the administration of the rangeland program and development of standards and guidelines. For the Forest Service these aspects include only changes in policy and regulations because the Forest Service already has an equivalent to standards and guidelines in their individual forest plans.

**MANAGEMENT ALTERNATIVES**

The five management alternatives analyzed in detail in the EIS are:

1. *Current Management* - Would continue existing policies, management decisions, and prescriptions.
2. *BLM-Forest Service Proposed Action* - Would change BLM and Forest Service rangeland policies and regulations, including development of national requirements and state or regional standards and guidelines for BLM, and changes in the grazing fee formula for both agencies. Multiple resource advisory councils for BLM would be established at the local level. The intent of the Proposed Action is to establish a more consistent program between the two agencies, to improve rangeland conditions and the administration of the rangeland program, to provide for meaningful public involvement, and to provide for equitable grazing fees while contributing to the sustainability of federal rangelands.
3. *Livestock Production* - Would allow permittees to continue grazing their livestock at current permitted levels. Permittees would be given increased control of rangeland management. BLM standards and guidelines would be developed at the local level by grazing advisory boards.
4. *Environmental Enhancement* - Would limit livestock grazing to areas in proper functioning condition and permanently exclude grazing from areas determined to be unsuitable. These areas include: designated and recommended wilderness areas, critical habitat for threatened and endangered species (as determined by the Fish and Wildlife Service), and developed recreation sites.
5. *No Grazing* - Would eliminate grazing on public lands over a 3-year phase-out period. BLM and Forest Service could use livestock to manage vegetation to achieve resource

objectives.

#### **FEE ALTERNATIVES**

Seven fee alternatives are detailed in the EIS:

1. PRIA (No Action)
2. Modified PRIA
3. BLM-Forest Service Proposal
4. Regional Fees
5. Federal Forage Fee
6. PRIA with Surcharges
7. Competitive Bidding

In Chapter 4 of the EIS, each management alternative and the cumulative impacts are analyzed. Chapter 4 also includes an extensive analysis of a high, moderate and low fee combined with each of the management alternatives.

The following tables summarize the management and fee alternatives.



**Table S-1. Management Alternative 1: Current Management (No Action)**

**National Requirements and Standards and Guidelines** •BLM has no comprehensive national requirements or rangeland management standards. •The Forest Service has set national rangeland management policy and establishes standards and guidelines within forest plans.

**Leasing** •BLM requires permittees to own or control both livestock and base property and assesses no surcharge. •The Forest Service does not allow leasing of livestock or base property.

**Foreign Corporations** •BLM requires that a permittee be a U.S. citizen or a group or association authorized to conduct business in the state in which the grazing use is sought, all members of which are U.S. citizens, or a corporation licensed to conduct business in the state in which grazing use is sought. •The Forest Service requires that a permittee be a U.S. citizen or a corporation at least 80 percent owned by U.S. citizens.

**Disqualification** Neither agency allows a permittee or applicant to be disqualified from applying for or holding another permit because of conduct or performance.

**Prohibited Acts** •BLM defines prohibited acts to include violations of the following two specific environmental laws: The Bald Eagle Protection Act; and the Endangered Species Act. •The Forest Service can cancel grazing permits when a permittee is convicted of violating federal or state environmental laws.

**Grant Policy** •BLM gives priority to existing BLM permittees when authorizing grazing permits. BLM does not consider past compliance with permit terms as a criterion. •The Forest Service has some criteria for granting grazing privileges, but livestock permittee performance is not a prime consideration.

**Permit Tenure** Both agencies usually issue permits for 10-year periods.

**Unauthorized Use** •BLM has no policy to differentiate incidental use that causes no resource damage from willful trespass. All unauthorized use is regarded formally as trespass. Three different fees are assessed for willful trespass depending on the circumstances. •The Forest Service has discretion to exempt small unintentional use from formal procedures and fines.

**Nonuse** •BLM managers can approve annual nonuse for conservation or personal business reasons. •The Forest Service may authorize up to 3 years of nonuse on an

annual basis for personal convenience or up to the permit term for resource protection.

**Suspended Nonuse** •BLM grazing permits can contain both active and suspended nonuse animal unit months. •The Forest Service does not recognize suspended nonuse on its grazing permits.

**Water Rights** Both agencies recognize the key role of the states in water rights issues. Since the 1980s, BLM policy has been not to apply for water rights for grazing purposes (this policy was not universally applied). Generally, both agencies apply for rangeland improvement water rights under state law and protest private applications for water rights on lands they administer, although in some cases BLM does not. Where permittees and BLM complete water developments under cooperative agreements, BLM sometimes files as co-owner of the water rights. Where permittees finance the entire water development on BLM-administered land, they may file for sole ownership of the water right. The Forest Service files for sole ownership of the water right where permitted by state law whenever livestock water is developed on National Forest System lands.

**Range Improvement Ownership** •BLM permittees who totally fund permanent range improvements are granted sole ownership. BLM retains ownership of range improvements completed under cooperative agreements. •The Federal Government owns all permanent improvements on Forest Service-administered land.

**Range Betterment Fund Distribution** •Half of receipts returned to BLM are dispersed to the district of origin, and the other half are allocated to any BLM field office by the Sec. of the Interior. •Under Forest Service regulations, half of receipts are distributed to the forest of origin with regional foresters able to assign half to any forest within their region.

**Range Betterment Fund Use** •BLM uses Range Betterment Funds for building range improvements. •The Forest Service uses Range Betterment Funds for on the ground project planning and building rangeland improvements.

**Expedited Appeals** •BLM decisions are automatically stayed upon appeal unless emergency regulations are invoked. •The Forest Service does not allow decisions under appeal to automatically be stayed.

**Grazing Advisory Boards** •BLM has grazing advisory boards. •The Forest Service does not have grazing advisory boards.

**Suitability** •BLM has no national criteria to determine the suitability of rangelands

for grazing, but such criteria can be considered at local levels. •Forest Service suitability criteria are set at the forest or allotment level.

Service Charge/Transaction Fee •BLM has a \$10 service charge for processing paperwork. •The Forest Service may charge a \$35 fee only if a permittee wants to split a billing period.

Rangeland Ecosystems Neither BLM nor the Forest Service has regulations specifically addressing the management of rangeland ecosystems.

**Table S-2. Management Alternative 2: Proposed Action**

**National Requirements and Standards and Guidelines** • The proposed action would establish national requirements for managing rangeland ecosystems on BLM lands. State or regional standards and guidelines would meet these national requirements and would be developed within 18 months of the Secretary's record of decision. If regional standards and guidelines are not put in place after 18 months, fallback standards and guidelines would take effect. • The Forest Service would continue to formulate standards and guidelines for rangeland management while it prepares national forest land and resource management plans.

**Leasing** • BLM would allow base property and pasture leases. A 20 percent surcharge would be applied to base property leases, a 50 percent surcharge would be applied to pasture leases and a 70 percent surcharge would be applied if both are involved. Sons and daughters of permittees and lessees would be exempted from both surcharges. • The Forest Service would not allow leasing.

**Foreign Corporations** • BLM and Forest Service permittees would have to be either U.S. citizens or a group or association authorized to conduct business in the state in which the grazing use is sought, all members of which are U.S. citizens, or a corporation licensed to conduct business in the state in which grazing use is sought.

**Disqualification** BLM and the Forest Service would not issue new or additional grazing permits or leases to applicants whose federal grazing permits have been canceled during the prior 3 years due to violations of the terms and conditions of the permit, or to applicants who have had state grazing permits or leases canceled during the prior 3 years due to violations of the terms and conditions of the permit or lease for lands within the grazing allotment for which the federal permit or lease is sought.

**Prohibited Acts** BLM and Forest Service permits could be canceled or suspended for violation of federal or state laws or regulations concerning pest or animal damage control, or conservation or protection of natural or cultural resources or environmental quality if public lands are involved or affected. No action would be taken unless the permittee or lessee has been convicted or otherwise determined to be in violation and no further appeals are outstanding.

**Grant Policy** Both agencies could issue grazing permits for new or unallocated forage to operators who have proven their ability to improve or maintain the condition of rangeland ecosystems.

**Permit Tenure** Both agencies would continue to generally issue permits for 10-year periods.

**Unauthorized Use** Both agencies would exempt small, unintentional trespass from formal procedures and fines and apply one of three different fees for willful trespass, depending on the circumstances and seriousness of the trespass.

**Nonuse** Both agencies could authorize conservation use for extended periods when needed to meet resource management objectives. Conservation use for resource management could be granted for up to the full 10 years of the permit. Nonuse for personal reasons could be granted for up to 3 years.

**Suspended Nonuse** BLM grazing permits would contain both active and suspended nonuse AUMs. The Forest Service would not authorize suspended nonuse.

**Water Rights** The Proposed Action provides consistent direction for the BLM regarding water rights on public lands for livestock grazing purposes. It is intended to generally make BLM's policy consistent with Forest Service practice, and with BLM policy prior to being changed in the early 1980s.

Under the Proposed Action, any new rights to water on public lands to be used for livestock grazing on those lands will be acquired, perfected, and maintained under state law, and in the name of the United States unless state law prohibits it. The proposal does not create any new federal reserved water rights. Any right or claim to water on public lands for livestock watering on public land by or on behalf of the United States remains subject to the provisions of 43 U.S.C. 666 (the McCarran Amendment), and section 701 of Public Law 94-579 (the Federal Land Policy and Management Act disclaimer on water rights). Finally, it does not change existing BLM policy on water rights for non-livestock-related uses, such as irrigation, municipal or industrial uses.

**Range Improvement Ownership** Subject to valid existing rights, BLM and the Forest Service would hold title to all future permanent range improvements. Valid existing rights to range improvements and compensation therefore under the Federal Land Policy and Management Act would not be affected. A permittee's or lessee's contribution toward new permanent range improvements would be documented for proper credit.

**Range Betterment Fund Distribution** BLM policy would become consistent with current Forest Service policy. Twenty-five percent of BLM grazing receipts returned to BLM



would be returned to the district of origin and the remaining 25 percent would be distributed at the Secretary of Interior's discretion.

**Range Betterment Fund Use** For both agencies Range Betterment Funds would be used for range improvements and for a wider range of activities needed to maintain and improve ecosystem health including, monitoring, planning, engineering, environmental assessments, and construction.

**Appeals** Parties affected by grazing administration decisions are allowed 30 days in which to file an appeal and a request to stay implementation of the decision. BLM and Forest Service would review requests to stay rangeland management decisions within 45 days. Unless granted, a petition for stay could provide a maximum 75 day period before final decisions are in place.

**Grazing Advisory Boards** BLM grazing advisory boards would be replaced by multiple resource advisory councils consisting of a diverse group representing a wide array of perspectives within communities to advise the BLM on restoring and maintaining proper functioning condition of public rangelands.

**Service Charge/Transaction Fee** BLM and Forest Service transaction fees would be consistent.

**Rangeland Ecosystems** Both agencies would emphasize and implement policies to manage rangeland resources using an ecosystem approach.

**Table S-3. Management Alternative 3: Livestock Production**

**National Requirements and Standards and Guidelines** •BLM would have standards and guidelines developed regionally by permittees and grazing advisory boards. •The Forest Service would continue to develop local standards and guidelines within forest plans.

**Leasing** BLM and the Forest Service would allow base property and pasture management leases without a surcharge.

**Foreign Corporations** BLM and the Forest Service would prohibit foreign corporations from holding federal grazing permits.

**Disqualification** The local grazing advisory boards would determine permittee qualifications for both agencies.

**Prohibited Acts** •BLM would define prohibited acts to include violations of only two specific statutes, the Bald Eagle Protection Act and the Endangered Species Act. •The Forest Service would cancel grazing permits when a permittee is convicted of violating federal or state environmental laws.

**Grant Policy** Both agencies would issue grazing permits for new or unallocated forage to operators who have proven their ability to improve or maintain the condition of rangeland ecosystems.

**Permit Tenure** For both agencies, permit tenure lengths would be 10 years minimum and 20 years for good stewardship.

**Unauthorized Use** Small, unintentional trespass would be exempt from formal procedures and fines for both agencies. One fee would be charged for willful or repeated willful unauthorized use.

**Nonuse** BLM and Forest Service could authorize up to 5 years of nonuse for permittee personal convenience and year-to-year nonuse for resource protection.

**Suspended Nonuse** •BLM grazing permits could contain both active and suspended nonuse animal unit months. •The Forest Service would not recognize suspended nonuse.

**Water Rights** BLM and the Forest Service would allow grazing permittees to file for water rights on public land for stock watering developments.

**Range Improvement Ownership** BLM and the Forest Service would hold title to range improvements. Permittees would hold financial interest to improvements in proportion to their contributions.

**Range Betterment Fund Distribution** Fifty percent of all grazing fees collected would be returned to the forest or BLM district of origin.

**Range Betterment Fund Use** •BLM would use range betterment funds solely for building range improvements. •The Forest Service would use Range Betterment Funds for planning and building rangeland improvements.

**Expedited Appeals** •BLM decisions would be automatically stayed upon appeal, unless emergency regulations are invoked. •The Forest Service would not allow a decision under appeal to automatically be stayed.

**Grazing Advisory Boards** Both agencies would have grazing advisory boards with expanded roles in public involvement, planning, decisionmaking, monitoring, and setting resource management objectives.

**Suitability** •BLM would not have national suitability criteria for grazing on public rangeland, but such criteria could be considered at local levels. •The Forest Service would establish suitability criteria at the forest or allotment level.

**Service Charge/Transaction Fee** BLM and the Forest Service would eliminate all service charges and transaction fees.

**Rangeland Ecosystems Goals and objectives** for rangeland ecosystems would be set through consultation with grazing advisory boards.

**Table S-4. Management Alternative 4: Environmental Enhancement**

**National Requirements and Standards and Guidelines** •Regional standards and guidelines would be established for BLM lands in addition to national standards and guidelines. •Detailed policy would be formulated for the Forest Service to complement standards and guidelines now included in Forest Service land and resource management plans.

**Leasing** Neither BLM nor the Forest Service would allow leasing.

**Foreign Corporations** BLM and Forest Service permittees would have to be either U.S. citizens or businesses licensed in the U.S.

**Disqualification** Both BLM and the Forest Service would prohibit permittees from holding grazing permits for up to 3 years if they have had any federal grazing permits canceled for violating federal grazing regulations.

**Prohibited Acts** BLM and Forest Service permits could be canceled for violation of federal or state resource protection laws.

**Grant Policy** Forage could not be allocated above current preference or permitted numbers, even after desired conditions are reached.

**Permit Tenure** Ten-year term grazing permits would be issued only to permittees who have records of substantial compliance with terms of permits.

**Unauthorized Use** Both agencies would exempt small, unintentional trespass from formal procedures and fines and would assess three different fees for willful trespass, depending on circumstances.

**Nonuse** BLM and the Forest Service would automatically approve nonuse for up to 10 years.

**Suspended Nonuse** Suspended nonuse would be eliminated from BLM grazing permits, making BLM and the Forest Service policy consistent.

**Water Rights** BLM would assert claims and rights to water developed on public lands for the benefit of public resources and uses. Existing rights held by other parties on public or other lands would not be affected. BLM and Forest Service water rights policies would be consistent.

**Range Improvement Ownership**      BLM and the Forest Service would hold title to all future permanent range improvements.

**Range Betterment Fund Distribution**   •Consistent with current Forest Service policy, 25 percent of BLM grazing receipts would be returned to the district of origin and the remaining 25 percent would be returned to BLM state offices for discretionary disbursement.   •The Forest Service would continue its current policy.

**Range Betterment Fund Use**   For both agencies, Range Betterment Funds would be used for a wider range of activities needed to maintain and improve ecosystem health, including monitoring, planning, environmental assessments, engineering, and construction. Range Betterment Funds would not be limited to livestock-related projects.

**Expedited Appeals**      Both agencies would implement decisions automatically unless a stay of the decision is requested or granted.

**Grazing Advisory Boards**      Grazing advisory boards would be eliminated. Joint BLM-Forest Service resource advisory councils would be established on an ecoregion basis.

**Suitability**      Livestock grazing would be limited to areas that data shows are in proper functioning condition. Livestock would also be excluded from areas determined to be sensitive or unsuitable for grazing. Grazing might be allowed on areas with formerly unacceptable rangeland health when conditions improve and proposed management would not cause conditions to deteriorate.

**Service Charge/Transaction Fee**      Both BLM and the Forest Service would collect administrative service charges.

**Rangeland Ecosystems** BLM and Forest Service regulations would emphasize managing all uses, including livestock grazing, to sustain ecosystem biodiversity.



**Table S-5. Management Alternative 5: No Grazing**

National Requirements and Standards and Guidelines      Not needed. The Forest Service would continue to develop standards and guidelines in forest plans as needed.

Leasing      Would not apply.

Foreign Corporations      Would not apply.

Disqualification      Would not apply.

Prohibited Acts      Would not apply

Grant Policy      Would not apply

Permit Tenure      All permits issued for crossing or vegetation management would be temporary.

Unauthorized Use      Both agencies would enforce rules on unauthorized use of federal lands.

Nonuse      Would not apply.

Suspended Nonuse      Would not apply.

Water Rights      Would not apply. Water rights filings would follow existing state law.

Range Improvement Ownership      All range improvements would be owned by the Federal Government.

Range Betterment Fund Distribution      A Range Betterment Fund would not exist.

Range Betterment Fund Use      Would not apply.

Expedited Appeals      Appealed decisions would no longer be stayed automatically.

Grazing Advisory Boards      Would not be needed.

Suitability      Would not apply.

**Service Charge/Transaction Fee** A service charge would continue to be applied for trailing permits as specified in current regulations.

**Rangeland Ecosystems** Where needed, livestock would be used to help reach or maintain vegetation objectives.

## **Table S-6. Fee Alternatives**

### **PRIA (No Action)**

The fee alternative based on the Public Rangeland Improvement Act (PRIA) consists of a base value of \$1.23 per AUM that is updated annually using three indexes. The indexes consider the change in forage value, the change in beef cattle prices, and prices paid for selected items purchased by permittees. The annual fee would not differ by more than 25 percent from the fee charged in the previous year.

### **MODIFIED PRIA**

The Modified PRIA alternative would use the same base as PRIA, \$1.23, but would differ in using an index for all production costs rather than selected production costs as used in the PRIA alternative. The annual fee would not differ by more than 25 percent from the fee charged in the previous year.

### **BLM-FOREST SERVICE PROPOSAL (Proposed Action)**

The proposed action would adopt a fee formula using a base value (\$3.96) updated annually by a Forage Value Index. The \$3.96 base value represents a midrange between the results obtained through the use of two methods for estimating a fair base value. The proposed fee would be phased in over the years 1995 through 1997. Thereafter, annual increases or decreases in the grazing fee resulting from changes in the forage value index would be limited to 25 percent of the amount charged the previous year to provide for a measure of stability that would facilitate business planning.

This proposal would establish 1996 as the base year for the forage value index. The forage value index would not be used to annually adjust the fee in response to market conditions until the year 1997. This proposed rule would establish the 1995 grazing fee at \$2.75, and the 1996 grazing fee at \$3.50. Thereafter the fee would be calculated, using the base value of \$3.96 multiplied by the revised forage value index. By definition, the forage value index in the year 1997 would equal one; yielding a 1997 grazing fee of \$3.96. In subsequent years the calculated fee would depend on the changes in the market rate for private grazing land leases as reflected by the forage value index.

Fee incentive criteria would be developed during the first 2 years of a 3 year fee phase-in period. The third year of the phase-in would not be implemented until the incentive

criteria are developed. Instead a base value of \$3.50 would be substituted in 1997.

## REGIONAL FEES

The regional fee alternative is the same as the proposed action fee, except that a different base value would be applied to six pricing regions. The regional base values would be derived from the 1983 Federal Land Forage Appraisal (updated in 1992) as described above. The regional base values would be annually updated using the FVI. The annual fee would not differ by more than 25 percent from the fee charged in the previous year.

## FEDERAL FORAGE FEE FORMULA

The federal forage fee formula developed by the Western Livestock Producers Alliance is based on a 3-year average of private grazing land lease rates for 16 western states. The formula uses multipliers of private land lease rates and deducts the updated 1966 nonfee costs as described in the proposed fee alternative. That amount is multiplied by the percentage difference of cash receipts per cow for federal and nonfederal livestock producers. The annual fee would not differ by more than 25 percent from the fee charged in the previous year.

## PRIA WITH SURCHARGES

This alternative would use the fee under the PRIA fee alternative (\$1.86 for 1993) and add a surcharge to cover the cost of administering the grazing program at the local Forest Service and BLM administrative level. Each year the fee would be limited to twice the fee produced by the PRIA formula. After a 1-year phase-in, the surcharge would not differ by more than 10 percent from the previous year's surcharge. The 1993 fee range would have been between \$1.86 and \$3.72. For evaluation purposes, the \$3.72 fee is used.

## COMPETITIVE BIDDING SYSTEM

Under this alternative, competitive bidding would be used to set grazing fees. The successful bidder would be required to adhere to the terms of the permit and perform specific management practices and facilities maintenance. The terms of the permit would be part of the bid process, allowing bidders themselves to estimate the market value of the forage.

**Executive Summary**  
**Chapter 3**  
**Affected Environment**

Chapter 3 describes the natural resources and economic values of rangelands and discusses factors that have influenced current conditions.

The rangelands of the American West form a vast and varied landscape. Spanning nine climatic zones and containing diverse soils, vegetation, and wildlife, these rangelands include the hot deserts of the Southwest, sagebrush plateaus of the Great Basin, grasslands of the Great Plains, and the understory of Rocky Mountain coniferous forests.

Rangelands contain two basic types of vegetation communities: upland communities and riparian communities. Upland vegetation communities occur on dry sites and are by far the most widespread. Riparian vegetation communities occur in wet areas and are extremely limited, occupying only 1 percent of rangelands. Table 3-1 shows the amount of upland and riparian habitat managed by the Forest Service and BLM.

Rangeland vegetation communities, like all plant communities, change over time due to environmental influences such as climate, fire, insects, and disease. However, since European settlement of the West, rangeland vegetation has been affected predominately by the introduction of livestock grazing and related changes in the occurrence of fire.

Livestock grazing began in the southwest in the 1600s and expanded as settlement progressed. By the late 1800s livestock were grazing throughout the West. During this period millions of cattle, sheep, and horses grazed rangeland vegetation that had never before been grazed as intensively. Adverse effects from grazing were apparent prior to the turn of the century.

*Upland Vegetation and Watersheds*

Livestock grazing reduced native grasses and palatable shrubs in upland communities.



The overall amount of plants and plant litter covering the ground greatly decreased, exposing bare ground and heightening soil erosion. Since the mid 1930s, upland vegetation condition has shown improvement in many areas.

The reduction in grasses and plant litter disrupted the natural influence of fire on rangelands. Before settlement, fire was a common influence on upland communities. Fire destroys most brush species, but grasses and forbs increase after an area has burned. Frequent fire, caused both by lightning and started deliberately by Native Americans, helped to maintain a patchwork of shrub- and grass-dominated communities of upland vegetation.

With understory grasses and plant litter reduced by grazing, fires started and carried less easily. At the same time, land managers began to aggressively suppress fire. Fire was effectively curtailed on most rangelands except in the hot desert region of the Southwest where plants are widely spaced and fire was never considered frequent.

Shrub-dominated areas expanded as the grasslands were depleted and fires decreased. For example, sagebrush and pinyon-juniper communities have become more dense and widespread. Plant communities palatable to livestock or maintained by fire, such as native bunchgrasses and quaking aspen, have diminished.

Upland vegetation communities have also been altered by an expansion of annual grasses. The depletion of native grasses created an opportunity for nonnative annual grasses to become established. These invading grasses crowd out native plants, have less value for livestock and wildlife, and burn more readily. The expansion of annual grasses is permanently changing large areas of rangeland vegetation.

Once altered, upland vegetation communities change or improve only gradually. Native grasses revegetate slowly, annual grasses cannot be removed once established, and disturbed or eroded soils require a long time to rebuild. When management improves, upland communities that receive more than 12 inches of annual precipitation have shown improvement within 20 years. Drier areas generally have not improved.

#### *Riparian Vegetation and Watersheds*

Riparian vegetation communities make up only 1 percent of rangelands but provide far-reaching values and benefits. Healthy riparian communities stabilize and protect streambanks from erosion. They act like a giant sponge, helping to filter sediments, improve water quality, reduce flooding, recharge groundwater, and maintain streamflow. Riparian areas are also the most biologically productive and diverse habitats on public land. They provide food, water, cover, nesting areas, and protected pathways for wildlife movements and migrations. All fish and nearly all terrestrial wildlife species depend on riparian areas to survive.

The amount and quality of riparian communities have been severely reduced since the settlement period. Although uplands have improved since rangeland management began in the 1930s, riparian areas have continued to decline and are considered to be in their worst condition in history.

Rangeland riparian communities have been influenced by many factors, including flood control and irrigation impoundments, but they have been most affected by livestock grazing. Livestock tend to spend a lot of time in riparian areas because of the lush vegetation, shade, and water. Livestock remove protective vegetation, trample streambanks, and defecate near streams, degrading water quality. Streambank erosion increases, stream channels widen or deepen, and streams lose their ability to absorb, retain, and steadily release water.

When a stream loses these important watershed characteristics, it is said to be nonfunctioning. Nonfunctioning riparian communities cannot provide important watershed values and lack the amount and quality of habitat needed by fish and wildlife.

Once riparian areas become nonfunctioning they usually will not recover without major changes in management. But, because they have moisture, most riparian areas will respond relatively rapidly once disturbance factors are removed. Many riparian areas have improved and begun to function properly within 5 years of management changes. In some cases, restored riparian habitats have reestablished perennial streamflow in streams that had become intermittent.

### *Evaluating Rangeland Conditions*

Interpreting rangeland conditions has always been controversial. In the past, BLM and the Forest Service have applied field measurement techniques that describe vegetation communities but that do not tell whether overall ecological processes are working properly and meeting watershed and wildlife needs. To reflect this broader view, the agencies are adopting new methods of evaluating rangeland conditions.

The Forest Service has implemented a system based on whether rangeland conditions are meeting resource objectives for a given site. The resource objectives incorporate the fundamental needs and health of the ecosystem. Tables 3-2 and 3-4 show the present status of National Forest System lands using this system.

BLM is implementing a system based on whether rangeland conditions on a site can sustain natural plant communities and basic ecological functions. This system describes three categories of rangelands:

- **Proper Functioning:** when vegetation and ground cover maintain soil conditions that can sustain natural biotic communities.
- **Functioning but Susceptible to Degradation:** when the capabilities of proper functioning areas are threatened by livestock grazing activities.
- **Nonfunctioning:** when vegetation and ground cover are not maintaining soil conditions that can sustain natural biotic communities.

BLM has estimated the functioning condition of rangelands for purposes of analysis in the draft EIS. Tables 3-3 and 3-5 show the estimated present status of BLM lands using this system.

### *Wildlife and Special Status Species*

More than 3,000 species of mammals, birds, reptiles, fish, and amphibians inhabit public rangelands. Wildlife species and populations vary widely, depending on regional

climates and local habitat conditions. Overall, wildlife reflects the diversity and health of rangeland vegetation communities and watersheds.

The changes in rangeland vegetation communities since the settlement period have generally favored wildlife species that use brush-dominated upland communities. Examples are species such as mule deer, black-tailed jack rabbits, and javelina. Populations of most big game species are abundant and stable.

But, many wildlife species associated with native grassland and riparian communities have declined. More than 100 species that use rangelands are listed as federally threatened or endangered species, including the desert tortoise, Utah prairie dog, bald eagle, and Lahonton cutthroat trout. Many other wildlife species are considered in serious decline and have been given sensitive and other protective designations.

The decline in species that depend on riparian communities is especially extensive and alarming. Many species of native fish, upland birds, neotropical migratory birds, and raptors have been greatly affected. For example, more than 100 special status riparian species inhabit Arizona and New Mexico, and most of salmon stocks that use rangeland streams are at risk because of poor habitat conditions.

In addition to wildlife, 75 plant species are listed as federally endangered or threatened, and more than 1,100 other plant species are protected because of concern about viability.

### *Biodiversity*

Resource managers believe that the broad decline in wildlife and plant species, occurring throughout the world, cannot be reversed by managing for individual species. Species are declining because vegetation communities are degraded and natural processes are disrupted. To help species in decline, the health of the underlying resources must be restored. An approach for restoring these resources is managing for biodiversity.

Biodiversity refers to the total amount and variety of plants and animals in an area.

The area can be a local site, a watershed, a region, or even larger area. An area that is biologically diverse functions at its highest potential and provides the most stable and productive habitat for plants, wildlife, and people. A primary goal of BLM and Forest Service management is to maintain and enhance biodiversity on the lands they administer.

Managing for biodiversity entails identifying natural processes that do not function properly and changing the responsible actions. The purpose of management is to slow and reverse undesirable ecological processes. For example, in riparian communities management might change livestock grazing to enable vegetation to shade and protect streams, so streams could deposit sediment, repair eroded banks, and restore watershed functions. Wildlife and fisheries habitat would then improve and species could stabilize or recover.

#### *Wild Horses and Burros*

Approximately 46,000 wild horses and 8,000 burros inhabit public rangelands, protected and managed in accordance with the Wild and Free Roaming Horse and Burro Act of 1971. A major objective of the act is to maintain horse and burro populations at levels that are in balance with natural resources. Horses and burros use the same forage as livestock and often directly compete with livestock and wildlife for food and water. Horses also concentrate in and damage riparian areas, particularly during drought. BLM routinely gathers and removes excess animals to maintain suitable populations.

#### *Recreation and Wilderness*

Public lands are used for a variety of recreation activities and use is increasing rapidly. Recorded recreation use on BLM lands exceeded 74 million visitors during 1992. Recreation management is focused on nearly 5,000 developed and 24,000 undeveloped recreation areas and sites. Most of these recreation sites are accessible to livestock.

BLM administers 1.7 million acres of designated wilderness and has recommended that



9.7 million more acres be designated by Congress. The Forest Service manages about 29 million acres of wilderness. Under the 1964 Wilderness Act grazing is not precluded in designated wilderness and presently occurs in many areas. Some areas are not grazed due to the natural lack of forage or inaccessible terrain.

### *Cultural Resources*

Cultural resources on public rangelands include prehistoric sites dating from about 15,000 years ago and historic sites dating from the beginning of European influence in the 1500s. Cultural resources are divided into cultural properties and traditional lifeway values. A cultural property is a specific location of past human activity, identifiable through field inventory or oral evidence. Rock art, effigy figures, stage coach stops, or abandoned settlements are examples. A traditional lifeway value is important for maintaining a group's traditional system of religious belief or cultural practice. Examples are Native American use areas for plant collection, vision quests, or other spiritual practices.

Only about 6 percent of BLM administered lands and 12 percent of Forest Service administered lands have been inventoried for cultural resources. About 200,000 sites are considered eligible for designation under the National Historic Preservation Act of 1966. Of these, 1,207 sites totaling 2.8 million acres have been designated as nationally significant cultural resource areas.

The National Historic Preservation Act does not strictly prohibit activities from affecting cultural resources, but protecting cultural resources has become an integral part of BLM and Forest Service management practices.

### *Economic Conditions*

The description of economic conditions addresses the 16 western states where grazing is allowed on federal land: Washington, Oregon, California, Arizona, New Mexico, Colorado, Wyoming, Montana, Idaho, Nevada, Utah, North Dakota, South Dakota, Nebraska, Kansas and Oklahoma. Texas is not included due to the small amount of livestock grazing on federal lands. At times 11 western states (Arizona,

California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming), are referred to because these states have the highest concentration of federal rangeland.

The economy of the western states is highly diversified. Between 1982 and 1990, employment in all industries grew by 11 million workers. The percentage of total employment has increased in the service, finance, insurance, real estate, construction and retail sectors. Industries that have decreased as a percentage of total employment include: government, manufacturing, agriculture, transportation, communications, utilities, and mining.

As with employment, income in the agriculture sector has declined relative to the rest of the economy. In the 16 western states, income increased by \$350 billion from 1982 to 1990. Although income in the agriculture industry grew between 1982 and 1985, by 1990 the income level had fallen back to its 1982 level. All industries except agriculture grew in income over this period.

The following are some reasons for the above trends.

- Economic conditions made farming less attractive to entrepreneurs and investors.
- Farm incomes declined due to lower output prices and higher costs.
- Land prices, which rose significantly in the 1970s, declined in the 1980s.

Nationally, about 38 percent of the land used for raising cattle is leased. In western states, a substantial amount of federal land is leased, but nearly 70 percent of cattle raisers own all the land they operate.

Beef cattle producers with federal permits make up about 3 percent of the 907,000 producers in the 48 contiguous states. In the 11 western states, federal permittees and lessees make up 22 percent of total beef producers. Sheep producers with federal permits in the 11 western states make up about 19 percent of the total producers.

The importance of federal rangelands varies by the type of animal grazed. In the 16 and 11 western states permitted use makes up about 12 and 25 percent respectively of forage consumed by beef cattle. BLM-administered land makes up about 5 percent of the overall annual feed requirements for sheep operations, and the Forest Service administered lands make up about 6 percent.

The importance of federal rangelands to livestock production can also be measured by rancher dependency on federal forage. Average dependency of permittees on federal forage is highest in Arizona and lowest in Montana. The difference is due to the amount of federal land compared to private land, the availability of yearlong grazing, and the number of permittees who have BLM and Forest Service permits.

Livestock operations with federal permits are on average larger than operations without federal permits. Data from the 1990 Farm Costs and Returns Survey (FCRS), which contains ranch survey information on 6,678 permittees and 49,658 nonpermittees, shows that permittees on the average have more than twice as many cows as nonpermittees, 221 cows versus 93 cows. In addition, permittees average almost nine times as many sheep as nonpermittees, 112 sheep versus 13 sheep.

According to the 1990 Farm Costs and Returns Survey, BLM and Forest Service grazing fee expenses represent about 3 percent of total cash costs. Average per-cow costs for permittees are significantly lower than for nonpermittees. An estimate of the cost differential suggests that nonpermittee net costs are about \$40 per cow higher than permittee costs.

Nonpermittees purchased 10 times more feeder cattle than did permittees. This greater involvement in purchased feeder cattle by nonpermittees would by itself increase per cow costs. But on a per hundred weight basis, permittees costs were \$10 per hundred weight lower than nonpermittee costs, and receipts per hundred weight were slightly higher for permittees.

Permittees spent more per cow for breeding stock, fences, and hired labor than nonpermittees. Nonpermittees spent more per cow overall for capital items,

machinery, buildings, equipment, feed, pasture rental, purchased stock cattle, and other variable and fixed cash costs.

### Permit Value

As a general rule, a ranching operation which possesses a grazing permit is worth more than a similarly situated ranching operation that does not possess a grazing permit. The real estate market recognizes the difference in value between the two types of ranching operations in purchases and sales of such property. The difference in value reflects the benefits associated with the federal grazing permit. A long line of court cases has held that ranch owners with grazing permits cannot recover from the United States for losses in ranch value due to modifications of their grazing permit. A contrary result would place the government in the awkward position of being required to compensate ranch owners for privileges that were conferred by the government in the first place. In essence, recognition of permit value would allow permittees to retain the capitalized value of a public resource in their own hands, a resource which has never been conveyed by the public to the permittees.

In theory, the value of a permit at least partially reflects the capitalized difference between the grazing fee and the competitive market rate that could be charged for federal forage. Raising the grazing fee to a competitive market rate could eliminate the "value" of the permit. Altering the permit, such as the length of permit or the number of AUMs authorized, might also have this effect.

### *Social Conditions*

Many rural areas are experiencing a significant increase in population after decades of stability or decline. Other rural areas continue to lose population due in part to the outmigration of young people who leave for advanced education, military service, and employment. The West also has major cities that have experienced significant growth over the last few decades. These cities have many residents that are concerned about the environment and use the public rangelands for recreational pursuits.

The movement of people and jobs into rural areas began in the 1970s and is expected to continue into the 21st century. In scenic areas, ranches are being sold for recreation uses or subdivided for homes. Western rural areas are moving from a long-term economic dependence on agriculture or mining to recreation and tourism. These trends may cause rural natives to feel that they have lost control of their community.

A survey conducted by Saltiel (1991) provides information on the attitudes of 1,084 Montana farmers and ranchers toward grazing fees. Sixty-seven of the respondents opposed raising grazing fees, and 85 percent said increased grazing fees would harm them. But 56 percent of the ranchers without federal permits favored raising grazing fees. Nearly two-thirds of ranchers without federal permits said that a fee increase would not affect them, while 10 percent said that a fee increase would benefit them. A key point of Saltiel's survey is that most western ranchers do not have federal grazing permits and would not be affected by an increase in grazing fees.

According to data gathered in 1991 from 3,853 ranchers in 11 western states, the average rancher is 55 years old and has worked on the same ranch for more than 31 years. The average ranching family had ranched in the same state for 68 years.

These long-time ranchers perceive themselves as personifying traits such as fair play, honesty and independence. They take great pride in being independent but neighborly when the need arises. Most ranchers face increasingly stressful social situations as they try to balance their traditional lifestyles with changing communities.

In the past, natural resource management on public lands emphasized commodities. Emerging concerns regarding other non-commodity values have forced a reevaluation of resource management practices. In a 1993 national study of attitudes about rangeland management, two-thirds of the respondents said ranchers should pay more to graze livestock on federal lands. At least three-fourths of the respondents said wildlife should be better protected. About two-fifths said the economic vitality of local communities should be given priority in decisionmaking



about federal rangelands; a similar proportion disagreed.

According to public scoping for this EIS, groups and individuals with environmental concerns believe the current grazing fee system does not account for all costs to public resources, undervalues the grazing privilege, and tends to encourage overemphasis of grazing at the expense of other federal land uses.

Many recreationists want stricter policies on lands that are fragile and damaged. Recreationists who want cattle removed from federal rangeland believe cattle are destructive, their byproducts are disturbing, and fees should cover the damage to federal land. Some recreationists, however, are concerned about ranchers selling to outside interests. Many recreationists depend on ranchers opening their land to recreation and are concerned that new interests will close their land. Others believe ranching can be compatible with other uses, so long as livestock are properly managed.

## Executive Summary

### Chapter 4

#### Environmental Consequences

#### MANAGEMENT ALTERNATIVE 1: CURRENT MANAGEMENT

The continuation of Current Management would cause the following changes in livestock use and environmental conditions.

##### *Grazing Administration*

##### Livestock Use Levels

Livestock forage authorized by BLM would decline by 18 percent and forage authorized by the Forest Service would decline by 19 percent over 20 years. Contributing factors include stocking rate adjustments resulting from monitoring studies that indicate continuing resource damage and a declining economic feasibility of livestock grazing. Changes in forage authorization would also result from implementation of recovery plans for listed threatened and endangered species.

BLM and Forest Service grazing regulations would continue to be inconsistent in the following areas: leasing, prohibited acts, grazing advisory boards, suspended nonuse, unauthorized use, affected interests, appeals process, grant policy, Range Betterment Fund use, water rights, foreign corporations, permit size limits, and service charges. These inconsistencies would continue to cause confusion for permittees and the public and would continue to produce inefficiencies that increase administrative costs. In some areas, such as delays in implementing management changes caused by BLM's appeals process, current regulations would continue to be contributing factors for declining environmental conditions.

##### Availability and Use of Range Betterment Funds

Current BLM interpretation of Range Betterment Funds do not allow spending funds for tasks such as project planning, environmental assessments, and range improvement monitoring, even though they may be directly associated with on-the-ground

improvements. Requiring such costs to be paid with program administration funds reduces the capabilities of those other resource programs. Restricting the use of Range Betterment Funds to a narrow interpretation of what is associated with on-the-ground projects would, however, ensure funding for construction of range improvement projects, but not necessarily their efficient functioning.

Under Current Management the grazing fee would not change and grazing fee receipts would decline by 20 percent over the long term. The corresponding decrease in Range Betterment Funds would limit the building of range improvement projects, decrease reconstruction of existing projects, and slow implementation of allotment management plans. Resource conditions could deteriorate at an accelerated rate, and livestock grazing could need to be reduced more than currently projected.

### *Vegetation*

#### Upland Conditions

In the long term (20 years), it is estimated that about 117 million BLM upland acres would be in proper functioning condition (an increase of 30 percent). Another 22 million upland acres would be functioning but susceptible to degradation (a decrease of 55 percent), and upland acres in nonfunctioning condition would be about 20 million acres (a decrease of less than 5 percent). In the long term, about 60 million acres (82 percent) of Forest Service uplands would either be meeting objectives or moving towards objectives. Another 13 million acres (18 percent) would not be meeting objectives.

#### Riparian Conditions

In the long term, about 33 percent of BLM riparian areas would be functioning properly (a decrease of 3 percent from 1993), 45 percent would be functioning but susceptible to degradation (a decrease of less than 1 percent from 1993), and 21 percent would be nonfunctioning (an increase of 7 percent from 1993). In the long term, about 75 percent of Forest Service riparian areas would either be meeting objectives or moving toward objectives (a decrease of 4 percent from 1993). About 25 percent would not be meeting objectives (an increase of 14 percent from 1993).

The following factors would contribute to these projected vegetation changes:

- Uplands would improve over the long term because the historical management emphasis and the use of Range Betterment Funds have favored pasture configurations and rangeland developments intended to benefit upland vegetation.
- Uplands would gradually improve because, once depleted, arid lands change very slowly. Upland areas that receive more than 12 inches of annual precipitation would be most likely to improve. Uplands that receive less precipitation would not change significantly. Areas dominated by thick stands of woody vegetation, such as juniper, are unlikely to change without mechanical treatment or fire.
- Riparian conditions would decline mainly because of the tendency for livestock to congregate in and overgraze low-elevation riparian areas. Local management plans are inconsistent and vary in effectiveness. Local improvements would be made but would not reverse the broad, long-term decline in riparian resources.
- Existing administrative procedures tend to hinder improvements in riparian conditions. Permittees often view changes to improve riparian areas as costly or disruptive to traditional grazing patterns. Appealed BLM decisions are stayed by the existing administrative process, and needed management changes are substantially delayed.

### *Watershed*

Watershed and water quality conditions would remain static or decline slightly over the long term. Accelerated erosion and runoff from uplands would decrease, but streambank trampling by livestock and continued decline in overall riparian conditions would increase sediment discharge in many areas. Over the long term important watershed functions, such as water quality maintenance, flood peak reduction, and ground water recharge, would remain nonfunctioning or functioning but susceptible to degradation.

### *Wildlife*

Improvements in upland vegetation would benefit upland-dependent wildlife. Big game species would remain generally stable. Local populations would be affected primarily by habitat changes caused by fire, and by climatic conditions. However, the decline in riparian conditions would affect big game species, such as mule deer, that rely on riparian habitats for thermal and hiding cover.

The abundance and diversity of wildlife species dependent on riparian habitat would decline over the long term. At greatest risk would be waterfowl, many upland game birds, and raptors associated with cottonwood and aspen riparian habitats.

About 20 percent of anadromous fish habitat would significantly improve, but habitat conditions elsewhere would remain static or decline. Overall, anadromous fish populations would continue to decrease over the long term.

#### *Special Status Species*

Special status species associated with upland vegetation would benefit from improvements in upland conditions. But, many special status species are associated with riparian habitat. Their status would be unlikely to change and as riparian areas continue to decline, more species dependent on these areas would become listed.

#### *Wild Horses and Burros*

Improvements in upland vegetation would benefit wild horses and burros. Herds, however, would continue to be harmed by administrative procedures that favor livestock benefits over other uses, such as spending Rangeland Betterment Funds to build livestock fences within herd management areas.

#### *Recreation, Wilderness, and Cultural Resources*

Recreation values would continue to be degraded by livestock grazing and by declines in water quality and riparian habitat conditions. Livestock trampling and fecal matter reduce aesthetics and environmental quality at developed and undeveloped recreation sites. Declining riparian conditions reduce wildlife viewing opportunities, make streams



less floatable and fishable, and degrade a variety of recreation experiences.

Continued declines in riparian conditions and concentrations of livestock in riparian areas would lessen naturalness, solitude, and other values of designated wilderness and wilderness study areas.

Cultural resources are often associated with riparian areas and would continue to be harmed by livestock trampling and accelerated erosion in nonfunctioning riparian habitats. Overgrazing also reduces native food-source plants important to Native Americans.

### *Economic Conditions*

Allocated forage would decline on average by 5 percent over 5 years and by 20 percent over 20 years. These declines are based on trends over the past 10 years, which are projected to continue. Contributing factors include stocking rate adjustments resulting from monitoring studies that indicate continuing resource damage and a declining economic feasibility of livestock grazing. Changes in forage authorization would also result from implementation of recovery plans for listed threatened and endangered species.

Employment and income impacts would be minor in the agriculture sector in particular and compared to the westwide economy as a whole. The economic impacts would occur in the context of a western economy that has shown consistent growth over the past 10 years and is expected to continue growing. Continued growth in employment and income in other sectors would tend to offset the relatively small employment and income reductions from declines in livestock AUMs.

Population growth and demographic changes in the West and in many western rural communities would continue to transform rural economies. Population growth in many rural communities, while contributing to economic growth and diversification, would continue to diminish the relative importance of agriculture in those communities.

### *Social Conditions*

Permittees would have time to adjust to the projected long-term decline in forage. Income would decline if fee levels increase unless offset by increases in livestock prices and off-ranch income. Losses in ranch income would result in declines in the economic well-being of some permittees and their families. Lifestyle changes could include families decreasing their spending, diversifying operations to make them less dependent upon ranching, sending family members to work off the ranch to bring in more income. Most permittees would try to adjust their operations to absorb the income losses rather than sell their ranches because they value the ranching lifestyle.

Because permittees and other county residents would have time to adjust to the long-term declines in federal forage, and because Current Management represents no change from current policy, the social environments of many communities would not be affected.

Generally, the social well-being of recreationists and environmentalists would decline under Current Management because of the projected long-term decline in riparian and wildlife habitat and recreation opportunities.

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MANAGEMENT ALTERNATIVE 2: PROPOSED ACTION

Implementing the Proposed Action would cause the following changes in livestock use and environmental conditions.

*Grazing Administration*

Livestock Use Levels

After 20 years, authorized livestock forage would be 3 percent less than under current management. Contributing factors include stocking rate adjustments resulting from monitoring studies that indicate continuing resource damage and a declining economic feasibility of livestock grazing. Changes in forage authorization would also result from implementation of BLM state or regional standards and guidelines and recovery plans for listed threatened and endangered species. Livestock forage authorized by the Forest Service would be the same as under current management

The Proposed Action would also have the following effects.

- BLM and Forest Service grazing regulations would become consistent in most areas. Agency regulations would remain different in leasing, suspended nonuse, incentive fee criteria, and advisory groups. Overall, grazing administration would become less confusing to the public and would increase in efficiency. Permittees with both Forest Service and BLM permits would be subject to more consistent grazing policies. Contiguous Forest Service and BLM permittees could be managed with increased consistency.
- Regulation changes to exempt small, unintentional trespass from formal procedures and establish a 3-year minimum requirement for base property leases would decrease BLM administrative workloads and costs.

- BLM's workload would increase initially during the development of state or regional standards and guidelines.

- Multiple resource advisory councils would provide more balanced input to BLM's rangeland management decisionmaking process than the current Grazing Advisory Boards. Continued open public involvement in the Forest Service decision process would not exclude anyone.

- The changes would allow both agencies to implement ecosystem management practices more consistently.

#### Availability and Use of Rangeland Betterment Funds

The Rangeland Betterment Funds available would depend on the grazing fee formula selected for implementation. Funds available would decline by 21 percent if the grazing fee remains constant, and would increase by 82 percent if the BLM-Forest Service proposed grazing fee formula is adopted.

As under the Current Management alternative, a decrease in Range Betterment Funds would limit construction of range improvement projects, decrease maintenance of existing projects, and slow implementation of allotment management plans. Resource conditions could deteriorate at an accelerated rate and livestock grazing may need to be reduced more than currently projected. An increase in Rangeland Betterment Funds would enhance the agencies' abilities to plan, and invest in range improvement projects to achieve resource objectives.

#### *Vegetation*

##### Upland Conditions

In the long term, BLM upland acres in proper functioning condition would be about 138 million acres, an increase of 55 percent (as compared to a 30 percent increase under current management). Upland acres functioning but susceptible to degradation would be about 6 million acres, a decrease of almost 90 percent (a 55 percent decrease is expected under current management). Upland acres in nonfunctioning condition would be about 15 million acres, a decrease of 30 percent (less than 5 percent decrease is

expected under current management). In the long term, about 60 million acres (82 percent) of Forest Service uplands would either be meeting objectives or moving towards objectives (an increase of 2 percent). Another 13 million acres (18 percent) would not be meeting objectives (a decrease of 9 percent).

#### Riparian Conditions

In the long term, about 43 percent of BLM riparian areas would be properly functioning (an increase of 27 percent from 1993). In contrast, under current management proper functioning riparian areas would decrease by 3 percent. About 41 percent would be functioning but susceptible to degradation (a decrease of 11 percent from 1993), and 16 percent would be nonfunctioning (a decrease of 20 percent from 1993). In contrast, riparian areas under current management in nonfunctioning condition would increase by 7 percent. In the long term, about 84 percent of Forest Service riparian areas would either be meeting objectives or moving toward objectives (an increase of 7 percent from 1993). About 16 percent would not be meeting objectives (a decrease of 26 percent from 1993).

The following factors would contribute to these projected vegetation changes.

- BLM national requirements would require management changes by the next grazing season in upland and riparian areas that are in nonfunctioning condition.
- Riparian areas respond quickly to changes in grazing management. Implementing standards and guidelines would immediately benefit inventoried riparian areas in nonfunctioning condition.
- Ending the automatic stay of appealed BLM decisions (making the rule consistent with that applied to most BLM appeals) would allow most decisions to take effect within 75 days and enable BLM to more rapidly make management changes needed to achieve resource objectives.
- Resource conditions would benefit greatly from certain administrative changes, such as providing for conservation use, allocating 50 percent of BLM Range Betterment Funds to priority areas, and allowing the use of Range Betterment Funds for planning



and monitoring the effectiveness of range improvement projects.

### *Watershed*

The Proposed Action would substantially improve upland watershed conditions over the long term. Reduced forage consumed by livestock would increase plant cover and water infiltration, resulting in less runoff and erosion. Riparian watershed conditions would benefit moderately from improved management and reduced livestock use. Water quality, ground water recharge, and increased streamflow would improve or increase on the 20 percent of the inventoried nonfunctional riparian areas projected to improve.

### *Wildlife*

The overall improvements in vegetation and watershed conditions would benefit most wildlife species. Projected increases in upland grasses would favor such big game species as elk over antelope and mule deer, but habitat diversity would be maintained on a local basis through management treatments and natural events such as wildfire and drought.

Increases in functioning riparian habitat would improve food sources, nesting, brood-rearing, and thermal cover for most wildlife. Big game, nongame, upland birds, waterfowl, raptors, and anadromous and resident fisheries would benefit over the long term. BLM control of future water rights on public lands and ownership of future permanent range improvement projects would also increase management opportunities for wildlife.

### *Special Status Species*

Over the long term, the Proposed Action would improve the vegetation communities favored by most special status species. Special status species dependent on native upland vegetation, such as sage grouse, could benefit substantially from the projected changes in upland condition. Improvements in riparian conditions would benefit populations of aquatic special status species such as the Lahontan cutthroat trout, Gila

trout, and others.

### *Wild Horses and Burros*

Improvements in riparian and watershed conditions would improve the overall health of herd management areas over the long term. Multiple resource advisory councils would give the needs of wild horses and burros more balanced consideration in range improvement projects and other management issues. Management opportunities for wild horses and burros would also increase due to cooperative agreements for BLM control of future water developments, BLM asserting claims to water under state law on public lands for grazing purposes on such lands, and BLM ownership of future range improvement projects.

### *Recreation, Wilderness, and Cultural Resources*

Improved habitat conditions would benefit overall recreation experiences. Fishing, boating, swimming, and wildlife viewing would improve as water quality and riparian conditions recover. Objectionable conditions, such as the presence of fecal matter, increased insects, and streambank erosion, would moderately decline over the long term.

Projected habitat improvements would benefit the naturalness of wilderness and wilderness study areas. Yet continued livestock and range development projects could continue to lessen opportunities for solitude and primitive and unconfined recreation.

Revising BLM livestock grazing regulations to allow cancellation of permits for violations of the Archaeological Resources Protection Act and the Native American Graves Protection and Repatriation Act would give cultural resources added protection. Cultural resources would also benefit from the requirement to locate livestock management facilities outside riparian areas, where a high density of cultural resources tends to occur.

### *Economic Conditions*

Allocated forage would be 3 percent less than under current management after 20 years. These declines are based both on trends over the past 10 years, which are projected to continue, and on management actions specific to the Proposed Action, which would reduce allocated forage in the short term. For example, authorized forage under current management would decline by 15 percent in 5 years, and 18 percent in 20 years. In the long term, forage reduction under the Proposed Action and Current Management would be virtually the same.

Consequently, impacts on employment and income would be greater under the Proposed Action in the short term, but over the long term would be similar to continuation of Current Management. Ranch employment and income could continue to decline in a western economy that has consistently grown over the past 10 years and is expected to continue growing. Continued growth in employment and income in other sectors would overshadow the relatively small employment and income reductions from declines in livestock grazing on federal lands.

Local impacts might or might not exceed overall impacts. Location and intensity of impacts are difficult to estimate. Ranching operations with a large number of cows and a large dependency on federal forage would be affected the most.

Improvements in resource conditions under the Proposed Action would create some positive economic impacts in the long term and offset some of the declines in employment and income from reduced forage allocations. Improved wildlife habitat and recreation sites could increase employment and income as hunting, fishing, and wildlife viewing opportunities increase.

Employment and income impacts would be minor relative to current conditions and trends in the westwide economy as a whole and in the agriculture sector in particular. The economic impacts would occur in the context of a western economy that has shown consistent growth over the past 10 years and is expected to continue growing. Thus, continued growth in employment and income in other sectors would tend to overshadow the relatively small employment and income reductions from declines in livestock AUMs on public lands.

### *Social Conditions*

Losses in ranch income would decrease the economic well-being of some permittees and their families. Lifestyle changes would include families decreasing their spending, diversifying operations to make them less dependent upon ranching, sending family members to work off the ranch to bring in more income, and selling ranches, either to other ranchers or to developers. Land use changes, such as increased recreation use and subdivision of privately owned ranch lands, are both a cause and a result of current trends in agriculture. Economically marginal ranches may be encouraged to sell either to other ranchers or to developers in regions where demand for rural homesites is increasing, resulting in further decline in agricultural production. Most permittees would try to adjust their operations to absorb the income losses rather than sell their ranches because they value the ranching lifestyle. It is anticipated that the demand would continue for every AUM available.

Changes in regulations might also require permittees to more intensively manage their operations. Ranchers are concerned about forage reductions that would result from implementing BLM standards and guidelines, the broadened representation on advisory boards and councils, and BLM ownership of all future permanent range improvements. However, multiple resource advisory councils would provide a forum for consensus building.

The Proposed Action, particularly at higher fee levels, would intensify feelings of mistrust and loss of personal control. However, multiple resource advisory councils would return some of the control back to public land users of all types. Improved range conditions could also enhance the long term stability of the ranching industry.

Generally, the social well-being of recreationists and environmentalists would improve under the Proposed Action because of improved riparian and wildlife habitat. This alternative is consistent with the attitudes of increased numbers of people in the West and across the country who believe that rangeland management should emphasize the protection of rangeland resources.

Job losses at all fee levels would be insignificant on a westwide basis. Most of the

projected decline in employment would be absorbed through retirements and people seeking other types of work in the normal course of their lives.



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**MANAGEMENT ALTERNATIVE 3: LIVESTOCK PRODUCTION**

Implementing of the Livestock Production alternative would cause the following changes in livestock forage use and environmental conditions.

*Grazing Administration*

Livestock Use Levels

Based on current trends, forage grazed would decline by 4 percent in the short-term. For the long-term, vegetation manipulation and range improvements would somewhat offset these trends, but forage would decline by 10 percent for BLM and 14 percent for the Forest Service, as compared to 15 percent in 5 years and 18 percent in 20 years under current management. After 20 years, livestock forage would be 4 percent greater under this alternative than under current management.

Changes in grazing regulations relating to standards and guidelines, nonuse, grazing advisory boards, range improvement ownership and water rights would allow BLM and the Forest Service to more efficiently administer their rangeland programs. The Livestock Production alternative would also have the following impacts:

- Authorizing grazing advisory boards to determine the validity of leases would lessen agency administrative workloads.
- Issuing 20-year permits to good stewards would reduce the administrative workload of reissuing permits.
- Allowing nonmonetary settlements for incidental unauthorized use would improve the efficiency of BLM employees.
- Tracking and maintaining records of suspended nonuse would continue to create

administrative inefficiency.

-Requiring the Forest Service to work with grazing advisory boards in setting priorities for the use of Range Betterment Funds would add to the Forest Service workload.

-Transferring administrative roles to grazing advisory boards would save time and money for the agencies.

#### Availability and Use of Range Betterment Funds

Range Betterment Fund amounts would depend on the grazing fee formula selected for implementation. Due to the projected decline in livestock use, if the current grazing fee formula is retained, Range Betterment Funds would decline by 12 percent. A 12 percent decrease in Range Betterment Funds, coupled with rising costs for range improvements, would allow fewer range improvements in the future.

Under the BLM-Forest Service proposed grazing fee, or regional fees, Range Betterment Funds would increase by 102 percent or 202 percent, respectively. Such large increases in Range Betterment Funds would more than offset rising costs of range improvements.

The net result of higher funding levels over the long term would be a substantial increase in the agencies' abilities to implement, maintain and rebuild range improvements aimed at a relatively narrow range of resource management objectives.

#### *Vegetation*

##### Upland conditions

In the long term, about 129 million BLM upland acres would be in proper functioning condition (an increase of 40 percent), 12.5 million upland acres would be functioning but susceptible to degradation (a decrease of 75 percent), and 17.5 million upland acres would be in nonfunctioning condition (a decrease of 15 percent). In the long term, about 60 million acres of Forest Service uplands would either be meeting objectives or moving towards objectives (an increase of 2 percent); another 13 million acres would not be meeting objectives (a decrease of 9 percent).

### Riparian Conditions

In the long term, about 32 percent of BLM riparian areas would be properly functioning (a decrease of 8 percent from 1993). Another 45 percent would become functioning but susceptible to degradation (a decrease of 2 percent from 1993). About 24 percent would be nonfunctioning (an increase of 18 percent from 1993). In the long-term, about 70 percent of Forest Service riparian areas would either be meeting objectives or moving towards objectives (a decrease of 10 percent from 1993); another 30 percent would not be meeting objectives (an increase of 37 percent from 1993).

The following factors would contribute to these projected vegetation changes.

- Standards and guidelines developed regionally by grazing advisory boards would likely emphasize the needs of livestock permittees. These needs include upland watershed stability and quality livestock forage conditions. This emphasis would help improve upland vegetation, but, combined with sustained grazing levels, would contribute to riparian area decline.

- Many grazing advisory boards would not support difficult decisions to better manage livestock for riparian protection.

- Livestock congregating near water and continuing to graze at current levels would result in overuse of riparian areas.

- The Livestock Production alternative would consider the management of sustainable diversified ecosystems to be secondary to the socioeconomics of western livestock production.

### *Watershed*

Watershed and water quality conditions would decline over the long term. Improvement in upland vegetation over the long term would reduce runoff and erosion, but continued grazing near riparian areas would more than offset this improvement. Continued grazing in riparian areas would cause increased sediment, altered stream channel structure, warmer water temperatures, lower dissolved oxygen levels, and

continue nonpoint-source pollution at or near existing levels.

### *Wildlife*

The decline of riparian areas would contribute to the long-term decline in riparian-dependent wildlife. Big game species, such as antelope and mule deer, rely on riparian habitat for shade and cover. The overall decline in riparian vegetation condition would reduce water, nesting habitat, roosting habitat, forage, and cover for upland game, waterfowl, and raptors. Overall aquatic habitat for resident and anadromous fish would continue to decrease as riparian conditions decline.

### *Special Status Species*

As riparian areas decline, special status species dependent on riparian habitat would decrease and become listed at an accelerated rate. Upland species dependent on livestock forage may increase slightly over the long term due to improved upland conditions.

### *Wild Horses and Burros*

Improved upland vegetation conditions would increase the amount of forage for wild horses and burros. More range improvements such as water projects, developed to increase livestock production would also benefit wild horses and burros. But spending Range Betterment Funds to build fences would constrain herd movements.

### *Recreation, Wilderness, and Cultural Resources*

Recreation experiences would decline more significantly under Livestock Production than under the Current Management because of increased range improvements, fencing and a decline in riparian conditions. More range improvements would lower the quality of user experiences. The expected increase in fencing would interfere with all types of travel. Declining riparian conditions would reduce wildlife viewing opportunities, make streams less floatable and fishable, and worsen a variety of recreation experiences.

In the long-term, wilderness study areas not designated wilderness would be subject to loss of wilderness values by new range improvements.

Livestock trampling and the effects of erosion in nonfunctioning riparian habitats would harm cultural resource often associated with riparian areas. An increase in livestock management facilities and major revegetation projects under the Livestock Production alternative could disturb extensive areas, directly damaging cultural resources.

### *Economic Conditions*

Allocated forage would decline by 3 percent after 5 years and by 12 percent after 20 years. The Livestock Production alternative would result in the lowest decline in allocated forage of all alternatives because of the increased management emphasis on producing livestock forage.

Fewer employment and income impacts would result from the Livestock Production alternative than from other alternatives. The impacts would be slight in the agriculture sector in particular and compared to the westwide economy as a whole. Continued growth in employment and income would tend to offset the relatively small employment and income declines from reduced forage. Short- and long-term rates of decline in employment and income would be lower than the rates of decline under Current Management but would not be reversed.

Increased emphasis on producing livestock forage would slightly slow the decline in the livestock subsector of the agriculture industry. But population growth and demographic changes in the West and in many western rural communities would continue to transform rural economies.

The overall projected deterioration of resource conditions would lessen recreation opportunities, which could adversely affect recreation-related economic activity.

### *Social Conditions*

Losses in income under Livestock Production would be smaller than under Current



Management. Permittees would have time to adjust to long-term declines in forage. At higher fee levels, losses would be higher than permittees are now experiencing.

Permittees would feel somewhat more in control over the management of their ranches under the Livestock Production alternative. However, demographic changes throughout the West would continue in a manner that could be threatening to the lifestyle values of some permittees. In some areas, recreationists and environmentalists might feel that more should be done to protect recreation, riparian, and wildlife resources.

Increasing numbers of people in the West and across the country believe that rangeland management should emphasize protecting resources rather than managing livestock. The Livestock production alternative generally opposes these attitudes.

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MANAGEMENT ALTERNATIVE 4: ENVIRONMENTAL ENHANCEMENT ALTERNATIVE

Implementation of the Environmental Enhancement alternative would cause the following changes in livestock forage use and environmental conditions.

*Grazing Administration*

Livestock Use Levels

In the short term, authorized livestock forage would decline from existing forage consumption by 53 percent on BLM public lands (as compared to 15 percent under current management) and by 45 percent on National Forest system lands. In the long term, authorized livestock forage would decline by 30 percent on BLM public lands (as compared to 18 percent under current management) and by 29 percent on Forest Service administered land. After 20 years, livestock forage would be 12 percent less than under current management. Contributing factors include stocking rate adjustments resulting from monitoring studies that indicate continuing resource damage and a declining economic feasibility of livestock grazing. Changes in forage authorization would also result from implementation of recovery plans for listed threatened and endangered species.

The projected decline reflects of the limits on grazing under the Environmental Enhancement alternative. This alternative would also have the impacts listed below.

- BLM and Forest Service regulations would be consistent.
- Changes in BLM grazing regulations and policies for lease and agreements, unauthorized use, full force and effect decisions, disqualification, resource advisory boards, range improvement ownership and permit size limits would improve BLM's efficiency. The Forest Service would improve its ability to deter unauthorized use and reduce the number of grazing permits issued. The changes would allow both agencies

to implement ecosystem management practices.

- BLM's workload would increase initially as BLM develops and implements regional standards and guidelines.

- Measuring compliance to determine length of permit tenure would initially increase administrative duties, but administrative work would level off over the long term as management improves.

- Resource advisory councils would provide more balanced input into the decision process for both agencies, resulting in more informed decisions.

- The opportunity for the public to petition to close areas to livestock grazing or to reopen closed areas would increase the workload for both agencies.

- The loss in ownership of range improvements would make some permittees less likely to contribute to future BLM range improvement projects. But, as the new policy becomes more accepted over time, permittee investment would rise again to the current level of the Forest Service.

#### Availability and Use of Range Betterment Funds

Range Betterment Fund amounts would depend on the grazing fee formula selected for implementation. A decline in livestock use would decrease Range Betterment Funds if the current grazing fee formula is retained. A decrease in Range Betterment Funds, coupled with rising costs for range improvements, would allow fewer range improvements in the future. While some range improvements would no longer be needed, others would continue to be needed to meet livestock management and other resource objectives. A decline in funding would be somewhat offset by giving the agencies more flexibility to distribute funds to priority areas.

With the proposed grazing fee formula or regional fees, Range Betterment Funds would increase. Such increases would more than offset the rising costs of range improvements and would allow more range improvements to be built, maintained, and rebuilt.

## *Vegetation*

### Upland Conditions

In the long term, about 151 million acres (95 percent) of BLM uplands would be in proper functioning condition (an increase of about 65 percent); No BLM upland acres would be functioning but susceptible to degradation; and about 8 million upland acres (5 percent) would be in nonfunctioning condition (a decrease of about 60 percent). In the long term, about 69 million acres (95 percent) of Forest Service uplands would either be meeting objectives or moving towards objectives (an increase of 18 percent); another 3.8 million acres (5 percent) would not be meeting objectives (a decrease of 73 percent).

### Riparian Conditions

In the long term, about 59 percent of BLM riparian areas would be properly functioning (an increase of 71 percent from 1993). Another 32 percent would become functioning but susceptible to degradation (a decrease of 30 percent from 1993). About 9 percent would be nonfunctioning (an increase of 53 percent from 1993). In the long-term, 100 percent of Forest Service riparian areas would either be meeting objectives or moving towards objectives (an increase of 28 percent from 1993).

The following factors would contribute to these projected vegetation changes.

- Implementing standards and guidelines that would allow grazing only in areas in proper functioning condition and would remove livestock from critical or unsuitable areas.
- Riparian areas would improve faster rate uplands because of the greater productive potential of riparian areas.
- Ending the automatic stay of appealed BLM decisions would allow most decisions to take effect within 75 days and enable BLM to make management changes needed to achieve resource objectives.
- Fifty percent of the Range Betterment Funds would be allocated on the basis of

ecosystem needs and would be used to improve or stabilize priority areas.

#### *Watershed*

Watershed and water quality would improve significantly in the long term, partially from grazing practices, but mainly from removing livestock from areas not in proper functioning condition. Erosion and runoff in the short term because at least 3 years would be needed to inventory, classify and remove livestock from uplands deemed unsuitable for grazing. Improved riparian and upland conditions would compliment each other. Pollutants from grazing practices would diminish as grazing is reduced.

#### *Wildlife*

Improved upland and riparian vegetation would increase cover for many wildlife species. Such improvements would benefit big game, upland game, waterfowl, raptors and fish by providing more diverse, healthy ecosystems. Such ecosystems provide more habitat and diverse diets for all wildlife. Resting riparian/aquatic habitats from grazing is the most compatible grazing strategy for fish habitat.

#### *Special Status Species*

Special status species would trend toward recovery in the short and long term as upland vegetation and riparian areas improve and provide the habitat characteristics required by many of these species.

#### *Wild Horses and Burros*

Improvement of upland and riparian vegetation would improve habitat conditions for wild horses and burros. By filing for all water rights under state law for new grazing related water developments, BLM would maintain the water sources year round for a variety of multiple uses, including wild horses. The free-roaming nature of wild horses would be considered when determining the location and construction of livestock fences.



### *Recreation, Wilderness, and Cultural Resources*

The closing of developed recreation sites to livestock grazing would eliminate livestock impacts to facilities. By removing livestock and range improvement projects from many areas, scenic quality would improve. The increase in wildlife would provide more opportunities for hunting, fishing, and observing wildlife. Improved riparian habitat would provide more floatable and fishable rivers and streams.

The naturalness, solitude, and other values of wilderness and BLM- and Forest Service-recommended wilderness would improve with the removal of livestock and improvements in riparian condition.

In the areas where livestock are removed, impacts to cultural and paleontological resources would be eliminated. The improvement of riparian resources to proper functioning condition would reduce the effects of erosion on cultural resources. Building fewer range improvements would reduce the potential for disturbances to cultural resources.

### *Economic Conditions*

Allocated forage would decline by 50 percent overall after 5 years and by 30 percent overall after 20 years. These declines are based both on trends over the past 10 years, which are projected to continue, and management actions expected to reduce allocated forage significantly in the short term.

The 5-year declines in employment and income across all fee levels would amount to 0.5 percent of total westwide agricultural employment. Employment and income impacts would be greater under the Environmental Enhancement alternative in both the short term and long term than under all the other alternatives except for No Grazing. Still, the impacts would be minor in the agriculture sector in particular and compared to current economic conditions and trends in the westwide economy as a whole. Continued growth in employment and income in other sectors would overshadow the relatively small employment and income reductions from declines in federal forage grazed by livestock. Locally significant impacts in some rural communities would

result.

Improved resource conditions in the long term would create positive economic impacts. These impacts would be greater than under any other alternative, except for No Grazing. Greatly improved wildlife habitat and recreation site improvements could generate increases in employment and income as hunting, fishing, and wildlife viewing opportunities increase.

Increases in Range Betterment Funds resulting from higher grazing fees under several fee alternatives might help mitigate losses to ranches by funding more improvements that benefit livestock.

Population growth and demographic changes in the West and in many western rural communities will continue to transform rural economies. Population growth in many rural communities, while contributing to economic growth and diversification, will continue to diminish the relative importance of agriculture in those communities.

#### *Social Conditions*

Losses in ranch income would result in declines in the economic well-being of some permittees and their families. Lifestyle changes would include families decreasing their spending, diversifying operations to make them less dependent upon ranching, sending family members to work off the ranch to bring in more income, and selling ranches, either to other ranchers or to developers. Most permittees would try to adjust their operations to absorb the income losses rather than sell their ranches because they value the ranching lifestyle. But under Environmental Enhancement, particularly at the higher fee levels, some ranches could no longer stay in business, although it is anticipated that the demand would continue for every AUM available.

Social impacts to permittees, ranching families, ranch employees, and related businesses would be far reaching and would have serious social consequences. For many residents of the ranching community, the Environmental Enhancement alternative, particularly at higher fee levels, would intensify feelings of mistrust and loss of personal control and threaten lifestyles. Some permittees would close off their base

property and access they control to public land to exert some control over their lives.

For the typical small community, the Environmental Enhancement alternative at any fee level would accelerate ongoing population losses. The effects of the fee increases would be greatest in areas with a high average dependency on federal forage.

In most communities residents believe that ranching is an important part of their community and lifestyle. Environmental Enhancement would indirectly but significantly affect local businesses, particularly agricultural supply and retail stores. Residents would be highly concerned about the change in emphasis away from livestock management and would strongly resent any alternative that greatly reduced livestock grazing on public lands. In some places, this alternative might speed up the ongoing rural development trends where area ranches are purchased and subdivided. Immigrants, developers, and other ranchers might compete over buying the smaller ranches, raising prices. These high prices would make it difficult for the remaining ranchers to purchase much of the land for sale.

Some recreationists and many people and groups with environmental concerns would believe that the Environmental Enhancement alternative offers a proper balance between livestock grazing interests and protecting public natural resources.

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##### **MANAGEMENT ALTERNATIVE 5: NO GRAZING**

The No Grazing alternative would cause the following changes in livestock use and environmental conditions.

##### *Grazing Administration*

###### Livestock Use Levels

No permanent livestock forage would be allocated. Livestock would graze only where needed to help achieve resource objectives. Livestock management work in the BLM and Forest Service would decline. Permittees would be compensated for the current value of their investments in livestock improvements, which would be expensive in the short term.

###### Availability and Use of Range Betterment Funds

Grazing receipts and Range Betterment Funds would fall to zero. The agencies would rely on appropriations to build or maintain such range improvements needed to meet management objectives. Enforcement costs associated with unauthorized use supervision would likely rise.

##### *Vegetation*

###### Upland Conditions

In the long term, 151 million acres (95 percent) of BLM uplands would be in proper functioning condition (an increase of about 65 percent), no BLM acres would be functioning but susceptible to degradation, and about 8 million acres (5 percent) would be nonfunctioning (a decrease of about 60 percent). In the long term, 69 million acres of Forest Service uplands would either be meeting objectives or moving toward objectives (an increase of 18 percent), and 3.8 million acres would not be meeting

objectives (a decrease of 73 percent).

#### Riparian Conditions

In the long term, about 65 percent of BLM riparian areas would be properly functioning (an increase of 91 percent from 1993), 28 percent would be functioning but susceptible to degradation (a decrease of 38 percent from 1993), and 6 percent would be nonfunctioning (a decrease of 68 percent from 1993). In the long term, about 100 percent of Forest Service riparian areas would either be meeting objectives or moving toward objectives (an increase of 28 percent from 1993).

Ecological conditions would improve the most under No Grazing. Removing livestock would improve plant vigor and reproduction, increase palatable grasses and forbs, increase plant litter, and reduce bare soil in most upland areas. However, removing livestock would reduce the long-term vigor of grass species in the plains grasslands, which evolved under heavy grazing by bison. Riparian areas would improve because they have high productive potential and respond rapidly to the removal of livestock. The amount, vigor, and diversity of vegetation would greatly increase. Historical riparian areas would be restored where a potential for recovery still exists.

#### *Watershed*

Watershed and water quality conditions would improve to their maximum potential. Increases in upland vegetation and plant litter would improve soil properties, increase water infiltration, and reduce the amount of runoff and erosion from upland areas. Water quality, ground water recharge, flood peak reduction, and other riparian watershed benefits would substantially increase as essentially all riparian areas move towards proper functioning condition.

#### *Wildlife*

The projected improvements in vegetation and watershed conditions would increase the diversity and abundance of wildlife. About 75 percent of degraded anadromous fish habitat would be restored. Waterfowl populations would increase, although expected increases may be limited by changes in resource conditions on private lands. Upland



game and nongame species would benefit from improved riparian habitat and from increased vegetation for winter food and cover. The use of management tools such as fire would need to increase to maintain optimal habitat for certain big game species.

### *Special Status Species*

The broad, accelerated improvement in ecological conditions would result in long term trends toward the recovery of many listed and sensitive species.

### *Wild Horses and Burros*

Wild horses and burros would benefit from improvements in vegetation and the removal of developments that restrict herd movement and migration.

### *Recreation, Wilderness, and Cultural Resources*

Many recreation values and experiences would significantly improve, including scenic quality, wildlife viewing, hunting, and fishing. Improved riparian areas would extend seasons and increase the number and quality of opportunities for water-based recreation. All recreation sites would be protected from grazing conflicts and impacts. Opportunities for unrestricted movement would increase as fences are removed.

Improved ecological conditions would benefit all wilderness values.

Impacts to cultural resources from development projects and livestock trampling would be eliminated. Historical properties associated with ranching would not be maintained and would be lost in the long term.

### *Economic Conditions*

The economic impacts would be greatest under the No Grazing alternative. Livestock grazing would be phased out on public lands over a 3-year period, thus reducing the forage for livestock grazing to zero.

No Grazing would affect about 8 percent of the beef cattle inventory in the 11 western states, and 2.4 percent of the beef cattle inventory in the 17 (including Texas) western states, and 0.8 percent of the sheep inventory in the 11 western states.

Employment and income impacts would be minor relative to the total westwide economy. In agriculture, impacts would be relatively greater. But in the long term, continued growth of employment and income in other industries would tend to offset employment and income reductions from eliminating grazing on public lands.

The effect on beef prices of eliminating livestock grazing on public lands would be slight. In the near term, liquidating sheep and cattle herds, would lower prices as more livestock are slaughtered. In the long term, a 1 percent decrease in national cattle inventory could result in about a 1 percent increase in retail beef prices. But this price effect could be negated by an increase in the national cattle inventory.

Greatly improved wildlife and fisheries habitat and recreation site improvements could increase employment and income as hunting, fishing, and wildlife viewing opportunities increase.

### *Social Conditions*

Losses in income would be greatest under the No Grazing alternative. These losses in ranch income would result in declines in the economic well-being of many permittees and their families. Lifestyle changes would include families decreasing their spending, diversifying operations to make them less dependent upon ranching, sending family members to work off the ranch to bring in more income, and selling ranches, either to other ranchers or to developers. Most permittees would try to adjust their operations to absorb the income losses rather than sell their ranches because maintaining the ranching lifestyle is important to them. But under No Grazing some operations would go out of business.

Owners of land adjoining federal lands would be responsible for preventing the unauthorized use of these federal lands. The agencies would not pay any costs for

needed fencing. There would be increased costs for federal land management agencies in controlling livestock trespass.

The social impacts to ranchers, ranching families, ranch employees and related businesses are far reaching and most severe under No Grazing. Many ranchers in their 50s and older would be seriously affected (the average age of ranch managers is 55). Generally as people get older, they have a harder time finding other suitable employment.

No Grazing would likely accelerate the current trend toward urbanization of some small rural communities because some ranchers would be forced to sell to outside interests.

Generally, the social well-being of recreationists and environmentalists would improve under No Grazing. This improvement would result from improved riparian and wildlife habitat and improved recreation opportunities. However, the unintended consequence of more subdivisions and real estate development could result in a reduction in environmental values.

## SUBLEASING

Subleasing, as defined in the proposed rule, would continue to be a violation.

Leasing of base property could be authorized, but a surcharge of 20 percent of the grazing fee would be added.

Pasturing of livestock <sup>owned</sup> by persons other than the permittee or lessee could be authorized, but a surcharge of 50 percent of the grazing fee would be added.

Where both the base property is leased and livestock owned by other than the permittee or lessee are pastured, and both actions have been authorized, a surcharge of 70 percent of the grazing fee would be added.

Sons and daughters of permittees and lessees would be excluded from the pasturing surcharge where they are participating in educational or youth programs related to agriculture or are establishing a herd in anticipation of assuming the ranch operation.

- ★ must be less than 50 percent of the authorized livestock numbers
- ★ must fit within overall authorized numbers and other terms and conditions of the permit or lease

The penalty for subleasing is two times the private grazing land lease rate for the 17 Western States, plus expenses incurred in detecting, investigating, and resolving the problem.

## UNAUTHORIZED USE

Nonmonetary settlement for incidental unauthorized use could be made where:

- ★the operator is not at fault,
- ★an insignificant amount of forage is consumed,
- ★no resource damage occurred,
- ★and nonmonetary settlement is in the best interest of the United States

Settlement of unauthorized use will <sup>be</sup> one, two or three times the private grazing land lease rate for the 17 Western States, plus expenses incurred in detecting, investigating, resolving violations, and any costs of impounding livestock



## AFFECTED INTEREST

The term does not appear in the rule. A new term, "Interested Public" has been added in its place.

*(expressing interest)*  
"Interested public" is defined as an individual, group or organization that has submitted written comments to the authorized officer regarding the management of livestock grazing on specific grazing allotments

Consultation with the interested public and others would be required at all key decision points and in the development of activity plans, standards and guidelines, and the planning of range development and improvement programs

The interested public would not be consulted when making minor temporary increases or decreases or when modifying active use when the modification falls within the terms and conditions of the permit or lease and are within the scope of the previously completed environmental analysis

The interested public would be provided copies of proposed decisions (except where the decisions pertain to alleged violations)

# FULL FORCE AND EFFECT DECISIONS

The authorized officer may provide that decisions be in full force and effect

42 CFR ~~21~~ 4.21  
rule

★30-day appeal period

★could petition for a stay of the decision

★if a petition for as stay is filed it must accompany the appeal

★Office of Hearings and Appeals has 45 days from the end of the appeal period in which they must rule on the petition for stay of the decision

★if the Office of Hearings and Appeals does not rule within 45 days, the decision goes into effect

★if no petitions for stay are filed, the decision becomes effective at the end of 30 days

Decisions would no longer be automatically suspended upon the filing of an appeal

Decisions could be placed in immediate effect when they are made to protect resources in cases such as drought, fire, flood, or insect infestation

★same 30 day appeal period and 45 day review of petitions for stay except, the decision goes into effect on the date stated in the decision

Decisions could be placed in immediate effect to temporarily close areas to grazing by specified kinds or class of livestock for a period not to exceed 12 months when necessary to abate unauthorized grazing use

★same 30 day appeal period and 45 day review of petitions for stay except, the decision goes into effect on the date stated in the decision

## SUSPENDED NONUSE

The rule would not change existing practice. The advance proposal to do away with suspended nonuse have been dropped.

## FORAGE ALLOCATION

Demonstrated stewardship would be one of the criteria considered in allocating available forage

## CONSERVATION USE

Conservation use is defined as an activity for the purpose of protecting the land and its resources from destruction or unnecessary injury

★would include improving rangeland conditions and the enhancement of resource values or functions

Permittees or lessees must be apply for conservation use

Conservation use requires approval by the authorized officer

★is allowable when in conformance with applicable land use plans, activity plans and standards and guidelines

Conservation use will not result in penalty for "failure to use"



## DISQUALIFICATION

There is a significant distinction between disqualification for renewal of permits and disqualification for issuance of new permits.

### RENEWAL:

Applicants would be disqualified if they are found not be in substantial compliance with permit or lease terms and conditions and associated rules and regulations

- ★ "substantial" limits disqualification to violations that result in the degradation of resources or inhibit BLM's ability to administer grazing

- ★ the authorized officer may take into account circumstances beyond the control of the permittee or lessee

Applicants for renewal would also be disqualified if:

- ★ they are found to be in repeated noncompliance

- ★ they are found, at the time of application, to be in violation of a prohibited act

- ★ they refuse to accept the terms and conditions of the permit or lease

## NEW PERMITS:

Applicants would be disqualified if they or their affiliates have had a Federal grazing permit or lease canceled for violation within the 36 months prior to application

Applicants would be disqualified if they or their affiliates have had a State grazing permit or lease within the grazing allotment for which application is made, canceled for violation within the 36 months prior to application

Applicants for new permits or leases would also be disqualified if:

- ★they are found to be in repeated noncompliance

- ★they are found, at the time of application, to be in violation of a prohibited act

- ★they refuse to accept the terms and conditions of the permit or lease

- ★they have been barred from holding Federal or BLM permits or leases by order of a court of competent jurisdiction

## PROHIBITED ACTS

Violations of prohibited acts could result in civil or criminal penalties, depending on the category of the offense. Civil action could include withholding, or suspending or cancelling, in whole or in part, the permit or lease

Added to the list of prohibited acts:

- ★violation of wild horse and burro regulations
- ★violation of Federal or State laws and regulations concerning:
  - ★placement of poisonous bait, traps, or hazardous devices designed for the destruction of wildlife without authorization
  - ★application or storage of pesticides, herbicides, or other hazardous materials without authorization
  - ★alteration or destruction natural stream courses without authorization
  - ★polluting of water sources
  - ★the illegal take, destruction or harassment, or aiding and abetting in the illegal take, destruction or harassment of fish and wildlife resources
  - ★the illegal removal or destruction of archeological resources

Other prohibited acts included in the existing regulations have been modified slightly

Violations may result in penalty when:

- ★public land is involved or affected

- ★they are related to grazing use

- ★a final determination (including citations) is made and no appeals are outstanding

Civil action taken in response to prohibited acts is appealable through the Office of Hearings and Appeals

## RANGE IMPROVEMENT OWNERSHIP

The United States would have title to all new permanent improvements on public lands

Permittees or lessees could hold title to temporary improvements such as those used for livestock handling or water hauling



## WATER RIGHTS

The proposed changes are limited in scope to rights to water used for livestock grazing. The proposal would not affect water rights for other uses such as irrigation, municipal or industrial

All actions taken to secure a water right would be consistent with State law

The rule would not affect valid existing rights

In the future, we want to ensure that rights to water developed for grazing use on public lands are in the name of the United States and will stay with the land

## NATIONAL REQUIREMENTS, AND STANDARDS AND GUIDELINES

### REQUIREMENTS:

★Grazing related plans and actions would incorporate:

★practices to maintain or achieve healthy, properly functioning ecosystems

★practices to maintain or achieve healthy, properly functioning riparian systems

★practices to maintain, restore or enhance water quality

★practices to maintain, restore or enhance habitat for threatened or endangered species or candidate species

If management actions fail to meet these requirements, corrective action will be taken prior to the start of the next grazing year

## STANDARDS AND GUIDELINES:

Standards would be separate from guidelines

Standards would be based on indicators of properly functioning condition

Guidelines would be the framework for management practices and actions that would be directed at meeting the standards

*Complete by 18 Nov.*

*Handwritten notes:*  
- Mandatory <sup>stocking</sup> <sup>water</sup> <sup>distribution</sup>  
- Distribution of <sup>water</sup> <sup>stocking</sup>  
- maintain <sup>water</sup> <sup>stocking</sup>  
- rehabilitation functions

State Director responsibilities

Multiple resource advisory councils

Interested public and others

Guiding principles versus fallback standards and guidelines

*Handwritten notes:*  
- May be <sup>fallback</sup>  
- <sup>local</sup> <sup>standards</sup>  
- but must be <sup>approved</sup>  
- <sup>approved</sup> <sup>of the</sup>

Implementation

Must be approved by the Secretary

If management actions fail to meet these requirements, corrective action will be taken prior to the start of the next grazing year

Land use plans, activity plans, and terms and conditions of permits

## ADVISORY COUNCILS

The proposal would do away with DACs, GABs, and the NPLAC

### **MULTIPLE RESOURCE ADVISORY COUNCILS:**

Multiple resource advisory councils would generally be established for each BLM district

Multiple resource advisory councils would provide advice to one BLM manager -- the designated Federal officer

They would provide advice on all aspects of BLM management except for personnel and the allocation and expenditure of budget

Multiple resource advisory councils could form resource teams and technical review teams for the purpose of obtaining local and task-specific input

Multiple resource advisory councils would have 15 members appointed by the Secretary

## Composition of multiple resource advisory councils:

5 members of each council shall be appointed, in any combination, from nominees who:

- ★hold Federal grazing permits or leases within the area for which the council is organized
- ★represent interests associated with transportation or rights-of-way
- ★represent developed outdoor recreation, off-highway vehicle users, or commercial recreation activities
- ★represent timber harvest, or
- ★represent energy and mineral development



5 members of each council shall be appointed, in any combination,  
from nominees representing:

★nationally or regionally recognized environmental organizations

★dispersed recreational activities

★archeological and historical interests, or

★nationally or regionally recognized wild horse and burro interest  
groups

5 members of each council shall be appointed, in any combination from nominees that:

- ★hold State, county or local elected office

- ★are employed by the State agency responsible for the management of fish and wildlife

- ★are employed by the State agency responsible for the management of water quality

- ★are employed by the State agency responsible for the adjudication of water rights

- ★are employed by the State agency responsible for the management of State lands

- ★represent Indian tribes within or adjacent to the area for which the council is organized

- ★are employed as academicians in natural resource management or the natural sciences

- ★represent regionally recognized private land in-holder organizations, or

- ★represent the affected public-at-large

At least one appointee must be an elected official

In making appointments, the Secretary would consider nominations made by the Governor and the public

A quorum would require 8 members

Recommendations would require agreement of three-quarters of the members present

Request for Secretary review would require agreement of all of the members present

## RESOURCE TEAMS:

Resource teams could be formed to provide more-local input for any area up to the size of the area for which the council provides advice

Resource teams would be standing teams

Resource teams would provide input to the council, not the BLM manager

Composition of resource teams:

- ★2 resident permittees or lessees
- ★1 resident public-at-large representative
- ★1 wildlife/recreation representative
- ★1 environmental group representative

At least one member must be a member of the advisory council

Resource teams could request a recommendation of the advisory council or the formation of a technical review team

## TECHNICAL REVIEW TEAMS:

Technical review teams would be formed by the advisory council as needed. They would disband upon completion of their assigned task.

Membership of technical review teams would be selected by the advisory council, at least one member must also be a member of the council



## GRAZING FEES

The fee would be calculated, beginning in grazing year 1997, using the following formula:

$$\text{Grazing fee per AUM} = \$3.96 \times \text{Forage Value Index}$$

The base value is \$3.96

The forage value index is based on the weighted average of the prior year's private grazing land lease rates for the 17 western states divided by the weighted average of the private grazing land lease rate in the year 1996

The fee would be phased in as follows:

$$\text{Grazing fee per AUM in 1995} = \$2.75$$

$$\text{Grazing fee per AUM in 1996} = \$3.50$$

Annual changes would be limited to plus or minus 25 percent of the prior year's fee

## THE EXCEPTION:

If a separate rulemaking detailing the qualification criteria for an incentive-based fee is not completed prior to grazing year 1997, a base value of \$3.50 would be substituted beginning in 1997 and until such time as the separate rule is completed.

$$\text{Grazing fee per AUM} = \$3.50 \times \text{Forage Value Index}$$

A 30 percent reduction in the fee would be provided -- a given in this rulemaking

The only outstanding issue is the set of criteria by which to determine qualification

If the rule is completed prior to grazing year 1997, the fee would be:

$$\text{Grazing fee per AUM} = \$3.96 \times \text{Forage Value Index} \times .70$$

which would equal \$2.77

TALKING POINTS WESTERN GOVERNORS'

**The Range Reform Proposal:**

Secretary proposed a new balance in the management of federal public rangelands in August 1993 that included proposed changes in policy and regulations, standards for livestock grazing in rangeland ecosystems, and a new grazing fee formula.

It was our *first* attempt in crafting a fair and balanced rangeland reform proposal.

Here is what we wanted to accomplish:

- Provide for ecologically based management of Federal rangelands
- Manage for sustainable ecosystems
- Promote sustainable economic activities on behalf of rural western communities
- Provide a fair and equitable return to the Government for the use of public lands and resources
- Improve grazing program administration efficiencies
- Increase consistency between BLM and Forest Service

## **Grazing Fees:**

**Purpose:** Establishing a new Federal grazing fee.

Based upon fair market value and comparable to fees paid for leasing comparable land. The fee needed to provide the public a fair return for the use of public resources,

Not cause a significant impact to the stability of dependent Western livestock industry and communities.

The fee needs to recover a reasonable amount of the Government's administrative costs and be reasonably easy to administer.

**Original Proposal:** The initial fee methodologies analyzed by the administration clearly pointed to an appropriate range of \$3.51 to \$5.05 for the 1993 base fee. The mid-point within this range (\$3.96 per AUM) was selected to serve as a basis for establishing a future fee structure.

**Criticism:** Producers say the fee is too high. The conservationists and fiscal conservatives say it is too low.

**Proposed Action:** The grazing fee will be increased in three phases over the years 1995 through 1997.

The fees will be \$2.75 per AUM in 1995; \$3.50 per AUM in 1996.

Thereafter, the fees would be calculated, using a base value of \$3.96 per AUM multiplied by the forage value index.

Pending the adoption of an incentive-based



### **Incentive-based Grazing Fee System:**

**Purpose:** The Department, conducted about 60 briefings and public meetings to explore the possibilities on an incentive based grazing fee. While an incentive based grazing fee may not be the perfect solution to the issue, it has some potential for helping to improve the condition of public rangelands while sustaining local economies.

**Original Proposal:** After hundreds of comments from the public in opposition of a federal government incentive-based grazing fee this idea was not promoted in the range reform package.

**Criticism:** The administration continues to hear a mixed message from the livestock producers and the other concerned publics.

**Proposed Action:** Proposal contains provisions for a 30 % fee incentive. If incentive proposal is not ready for implementation, the third incremental increase will be held.

The Secretary proposed an incentive system yet to be developed with public involvement. The incentive system will be completed within the first two years of the fee increase phase in.

### **Lower Grazing Fees for Small Operator:**

**Purpose:** Adjust the grazing fee to keep the smaller herd operators in successful production on the federal permits.

**Original Proposal:** The Department did not propose any adjustments in the grazing fee based on the size of the livestock operation on federal land.

**Proposed Action:** Based on public input only one fee level is proposed.

## **Water Rights:**

**Purpose:** In 1982, the BLM revised its stockwatering policy for grazing allotments on public land. This change allowed permittees to file for and hold sole title to water rights for stockwatering developments on public land. The intention was to encourage permittees to develop water sources to improve livestock distribution and forage use on grazing allotments.

**Original Proposal:** Amend the current regulations to provide for the BLM to file and hold sole title to water rights associated with future public land range improvements used for livestock purposes.

**Criticism:** They contend that the water rights language is so broad as to threaten private water rights, interfere with state water adjudications and even threaten drinking water supplies across the nation.

**Proposed Action:** The Department of the Interior will do nothing to change the structure of western water law. Any right acquired to use water on public land for the purpose of livestock grazing on public land shall be acquired, perfected, and maintained under the substantive and procedural laws of the State within which such land is located. To the extent allowed by the law of the State within which the land is located, any such water right shall be acquired, perfected, and maintained in the name of the United States.

## **Range Improvement Ownership:**

**Purpose:** The BLM proposed that the public hold title to all future permanent range improvements constructed on the public land. Numerous problems have occurred in the administration of public lands when private improvements were a source of conflicting uses.

**Original Proposal:** Amend the regulations to provide for federal ownership of all future permanent improvements on public land.

**Criticism:** Range improvements language is so broad as to affect the production and transportation of natural gas, natural gas liquids, crude oil, coal, hydropower, electricity and hard rock mining on public lands throughout the fifty states. Language requires federal ownership of all future permanent improvements on public lands endangers drinking water supplies throughout the nation and establishes a new standard for renewal of any federal permit for any improvement or facility that crosses any federal lands.

**Proposed Action:** Range improvements proposal only pertains to livestock, wildlife and wild horse facilitating projects. The proposal is to have title rest with BLM with recognition of contributor's investment. The rule would require title to all new range improvements constructed, on or made to the vegetation resource of public lands, except temporary or removable improvements, would be in the name of the United States. Since the change would be prospective, valid existing rights to range improvements and compensation therefor would not be affected.

**Appeal Rights:**

**Purpose:** On February 18, 1993 Secretary Babbitt issued a special rule which provides that all final decisions are full force and effect decisions while an appeal is pending unless an agency rule is in force. The BLM has such a rule which applies only to grazing decisions and needs to be removed from the regulations to comply with the Secretary's order.

**Original Proposal:** The BLM proposes to follow the Departmental rule without exception.

**Criticism:** Proposals make the permittee guilty of any alleged range regulation violations until proven innocent. Allowing BLM range officers to immediately enforce an administrative decision would immediately reduce the number of animals grazing on an allotment until an appeal is filed and completed.

**Proposed Action:** A person choosing to appeal a decision of the authorized officer would be provided a 30-day period in which to file an appeal. Appellants requesting a stay of the decision would be required to file a petition for stay with their appeal. In the instance where a petition or stay has been filed with an appeal, the Department of the Interior's Office of Hearings and Appeals would have 45 days from the expiration of the 30-day appeal period to either grant or deny the petition for stay, in whole or in part. Thus, where a person has filed a petition for stay of the decision of the authorized officer along with an appeal, and where the request for stay is denied, implementation of the decision could be delayed up to 75 days. In the event a stay of the decision is granted, the decision would be stayed until such time as a determination of the appeal is made.



## **Leasing:**

**Purpose:** One of the many concerns identified by the GAO and OIG regarding management leases or pasturing agreements, is that some federal permittees have unduly benefitted by charging sublessees on their federal allotments grazing fee rates which were substantially higher than was being returned to the taxpayers as a federal grazing fee.

**Original Proposal:** To ensure the public receives a fair return from use of public forage, the proposed regulation would assess an annual surcharge of 20 percent of the annual grazing fee for Federal AUM's transferred to a lessee as a result of a base property lease, and 50 percent of the annual grazing fee for federal AUM's involved in management leases. If both types of leases occur simultaneously, the surcharge would be 70 percent of the annual grazing fee.

**Criticism:** Proposal adds "common livestock business practices" to the definition of unlawful subleasing and impose a punitive surcharge to AUMs attributed to leasing base property and pasturing livestock owned by persons other than the permittee or lessee.

**Proposed Action:** Make it clear that family-owned businesses will not be subjected to any surcharges for leasing base property to, or entering into pasturing agreements with, family members (sons and daughters) operating within the family operation or assuming control of the family operation.

**Unauthorized Grazing use:**

**Purpose:** Permittee control of livestock on the public land is not always possible. In some cases, livestock control measures are ineffective for reasons outside the permittee's control.

**Original Proposal:** Provide regulatory authority for non monetary settlements of unauthorized use where it is clearly unintentional, incidental in nature, causes no resource damage, and results in no substantial forage consumption.

**Criticism:** Proposal threatens criminal sanctions for non-willful violations of Bureau of Land Management's grazing regulations.

**Proposed Action:** Reform would provide an alternative to formal trespass regulations for incidental, unauthorized use of public rangelands.

## **Multiple Resources Advisory Councils:**

**Purpose:** There is a need for the BLM to move towards management directed at maintaining or restoring healthy, sustainable ecosystems. The BLM must rely on constant advice and feedback from a wide array of viewpoints on how to apply the best available science. Advisory bodies are needed that represent a broad range of interests, experience, and expertise, and that can provide focused, consensual advice and recommendation.

**Original Proposal:** Within the provisions of FLPMA establish and charter Multiple Resource Advisory Councils.

**Criticism:** Councils should not replace grazing advisory boards. New councils will not review the distribution of range improvements, review ranch management plans or concern themselves with the construction of range improvements.

**Proposed Action:** 1.) Allow 15 members representing a balance of views on each council, which is consistent with Section 309(a) of FLPMA. 2.) Allow the Councils to have rangeland resource teams and technical review teams, if they so desire, to study and recommend special resource opportunities, and issues. 3.) Have a Multiple Resource Advisory Councils represent every BLM District 4.) Allow each State Governor to recommend individuals to a place on these councils. 5.) Allow each segment of the involved publics help determine how its representatives could be selected.

## **Range Improvement Funds:**

**Purpose:** Currently all range improvement funds are returned to the BLM District of origin. These funds are used strictly for on-the-ground range improvements and not for project planning, design, contract preparation, maintenance, etc. This requires appropriation of additional funds for other program to be used to support funding for implementation of range improvement project work.

**Original Proposal:** Broaden the use of range improvement funds and exercise greater opportunities in the distribution of these funds.

**Criticism:** Authorizes the use of federal range improvement funds for projects not related to livestock grazing, including such unrelated notions as improving public campgrounds.

**Proposed Action:** The Secretary could provide one-half of the range improvement fund to the State and District from which the funds were derived. The remaining one-half would be allocated by the Secretary of designee on a priority basis. All range improvement funds would be used for on the ground rehabilitation, protection and improvements of public rangeland ecosystems. This fund would be used for activities such as planning, design, layout, modification, and monitoring/evaluating the effectiveness of specific range improvements in achieving resource condition and management objectives. This will require consultation with Multiple Resource Advisory Councils, affected permittees, lessees, and interested publics.

### **Mandatory Qualifications:**

**Purpose:** The BLM needs applicants for livestock permits or leases to have a satisfactory performance record. The agency can increase its effectiveness and efficiency as land managers if more time is devoted to resource enhancement rather than regulation compliance.

**Original Proposal:** Prohibit permittees or lessees from holding a BLM grazing permit or lease for up to three years if they have had permits previously canceled due to violations of federal grazing regulations.

**Criticism:** Proposal unfairly requires a permittee to be in "substantial compliance with the terms and conditions of *any* federal or state grazing permit" to be eligible to hold and operate a federal grazing permit.

**Proposed Action:** When ranchers who have multiple permits and one is canceled, then the other permits will not be canceled. However, the rancher still should not be entitled to acquire an additional federal permit for three years.



### **Suspended Nonuse:**

**Purpose:** Suspended non-use originated during the late 1940's when the BLM initiated range surveys to allot livestock forage and balance it with rangeland capability. The over obligated AUMs were placed in suspended non-use in lieu of elimination after it was determined that the forage demand exceeded the capability or carrying capacity of the land. Few suspended AUMs have ever been restored to active use.

**Original Proposal:** Suspended non-use should be eliminated as permits and leases expire or are transferred.

**Criticism:** Criteria for determining suspended nonuse is so vague as to allow the punishment of prudent and careful operators who reduce their livestock in reaction to natural disasters such as drought.

**Proposed Action:** No action is proposed. Make it clear that areas that have obligated AUMs beyond the carrying capacity of the land and that forage which does not exist cannot be allocated by the BLM or consumed by any animal, domestic or wild. However, we should make it clear that all additional forage created on an allotment by the efforts of the rancher will be credited to that allotment and to their permit.

### **Prohibited Acts:**

**Purpose:** Under existing regulations the violation and conviction of environmental laws does not put the permit or lease at risk.

**Original Proposal:** Make violations of federal and state laws or regulations concerning conservation or protection of natural and cultural resources or environmental quality a prohibited act.

**Criticism:** Rancher's lease or permit could be suspended or revoked if there is an administrative finding of any violation of any federal regulation.

**Proposed Action:** Enumerate the specific statutes to be covered by this provision such as the Bald Eagle Protection Act, the Wild Horse and Burro Act, the Endangered Species Act, Migratory Bird Act, and other laws that protect natural or cultural resources. Ensure that no suspension or cancellation of a grazing permit or lease can occur until there has been a full opportunity to appeal the finding of a violation or conviction.

**Conservation Use:**

**Purpose:** Conservation use is authorized use to promote resource protection or enhancement, including progress toward achieving resource condition objectives consistent with the land use plan.

**Original Proposal:** Allow permittees up to ten consecutive years of conservation use of a permit or lease.

**Criticism:** Allows the Secretary of the Interior to terminate any permit or lease for any area for any reason, if he deems it desirable to set that area aside for conservation purposes.

**Proposed Action:** Limit conservation use to situations that are consistent with long range goals of the Resource Management Plan and allow applications not to graze an allotment for periods up to ten years instead of requiring annual applications.

## **Standards and Guidelines:**

**Purpose:** The fundamental responsibility of the BLM is to manage sustainable, healthy, productive ecosystems to meet our environmental, social, economic, aesthetic, and cultural needs. To achieve this, the BLM is developing ecosystem based approaches to managing public rangelands that safeguard the sustainability of biological systems.

**Original Proposal:** Develop national direction for management of livestock grazing within the rangeland ecosystem.

**Criticism:** There is no reason or justification for designing "cookie-cutter rules" and standards for all the West. In addition, the term ecosystem is so vague that the Secretary is given unlimited discretion to alter the west to fit his whim.

**Proposed Action:** Within 18 months develop regional standards and guidelines with input from the Resource Advisory Councils, as appropriate, taking into account the significant ecological differences throughout the west. Encourage local flexibility in meeting standards and guidelines.

**Affected Interests:**

**Purpose:** The levels of public involvement and opportunity provided for affected interests have lacked consistency among the various offices in the BLM.

**Original Proposal:** Establish a national policy to expand opportunities for citizen participation in the land management programs and further define the processes and requirements for groups or individuals to become affected interests.

**Criticism:** Affected interests rules will allow bureaucrats to decide who can petition their government for redress of grievances.

**Proposed Action:** Interested parties need only indicate in writing their desire to participate in land management. No selection criteria will be used to limit participation by any party.



### **Permit Tenure:**

**Purpose:** A permit or lease for a term less than 10 years would provide the agency with a greater number of options if the permittee is not in substantial compliance with terms and conditions of the permit.

**Original Proposal:** Provide for consideration of a permittee's demonstrated performance when determining permit or lease tenure.

**Criticism:** Reducing the length of a grazing permit will make the industry unstable and prevent honest families from securing financing to operate their ranches.

**Proposed Action:** Permits will be for ten year terms.

**Forage Allocation:**

**Purpose:** When additional forage is available, the agency wants to reward those permittees, who have demonstrated performance and compliance with the regulations and terms and conditions of their permits or leases.

**Original Proposal:** Allocate additional forage on the basis of a permittees or applicant's past performance in addition to the criteria in current regulations.

**Criticism:** Proposed rules for allocating additional forage will allow bureaucrats in Washington to establish criteria that penalize good operators with active preferences from obtaining their lawful claim to forage previously associated with their permit or lease.

**Proposed Action:** Only the permittees on an allotment would be eligible for allocation of additional forage.

## ***Rangeland Reform 94***

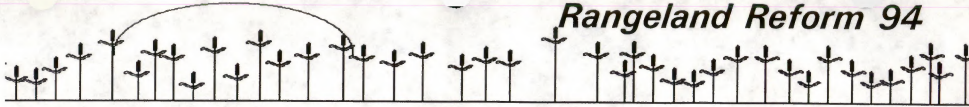


### **Current Management Alternative**

- \* Current versus Existing**
- \* No Standards and Guides**
- \* 20% decline AUM's within 20 years**

### **Proposed Action**

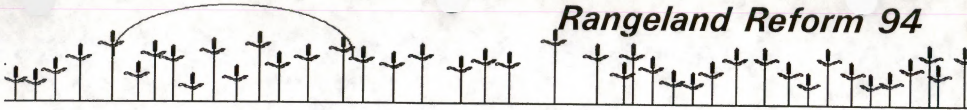
- \* Evolution of Gray Book**
- \* Scoping**
- \* DOI Secretary Meetings**
- \* Fee Formula**
- \* Incident until proven Guilty**



### **Livestock Production**

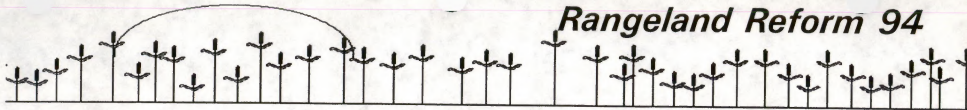
- \* Local Control**
- \* National Grasslands Model**
- \* Regional Standards and Guidelines**
- \* Strong Role for Grazing Advisory Boards**





### **Environmental Enhancement**

- \* **Guilty until proven Innocent**
- \* **No Grazing in:**
  - **Non-Functional**
  - **Functioning at Risk**
  - **Not Meeting Objectives**
  - **Unknown Categories**
- \* **The Big Dip in AUM's**



# Rangeland Reform 94

## Fee Alternatives

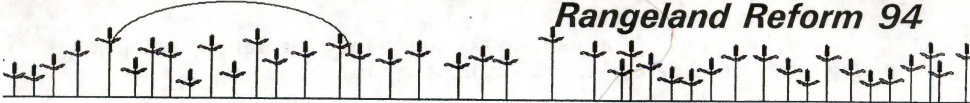
* PRIA	\$1.86
* Modified PRIA	\$3.69
* BLM/FS Proposal	\$4.28
* Regional	\$5.05-\$11.08
* Federal Forage	\$2.36
* PRIA with Surcharge	\$3.72
* Competitive Bid	\$5.05-\$11.08

*the proposed Fee  
increase will put  
some marginal producers  
out of business  
but the demand  
for rams will  
not change*

*300 x 6 =  
1800  
+ 369  
16200  
10800  
5400  
6642.00  
6642  
25  
400  
10000  
70000  
70000  
23220*

*10  
400  
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70  
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Handout - 1.5

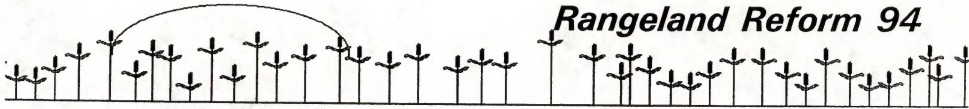


# ***Rangeland Reform 94***

## **Historical Background and Sequence of Events**

- \* Rangeland Reform Initiative - Background and the July 1994 Start**
- \* Rangeland Reform '94 release - "The Brown Book"**
- \* Scoping and ANPR releases**
- \* Legislation effort and the "Reid Proposal"**
- \* NEPA Requirements**
- \* Purpose and Need - Chapter 1**
  - Cooperation with Forest Service**
  - Grazing Fees**
  - Management Alternatives**
  - Regulations**

## ***Rangeland Reform 94***



### **RATIONALE FOR A REGIONAL APPROACH TO THE PROGRAMMATIC EIS**

**Problem:** Detail for the biological portion of the NEPA analysis was not adequate. Initially, the regions were delineated as follows:

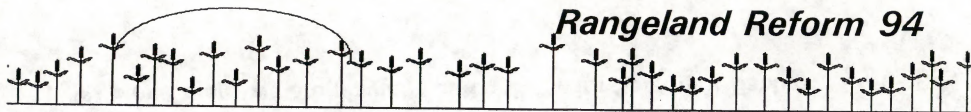
- ☺ **Hydrographic Units (large watersheds) - Considered because the S&G's were couched in terms of Proper Functioning Condition, and because major drainages are easily identified.**
- ☺ **Physiographic Regions developed by Brown and Kerr - This resulted in too many regions for the purpose of the EIS analysis (13 or 14).**
- ☺ **Ecoregions developed by Bailey - At the Province level, the bulk of the land administered by the BLM falls into one category (Temperate Desert Province), and the Hot Desert "stuff" is divided into three Provinces.**
- ☺ **Model based on combination of major watersheds, and BLM's physiographic regions. (See map in notebook.)**

### **INTERDISCIPLINARY TEAMS (IDT'S)**

**IDT's were established for each of the Analysis Units.**

- ☺ **8 to 10 individuals representing a variety of disciplines (recreation, wildlife, range, watershed, cultural, economics, etc.)**
- ☺ **Forest Service personnel were on each team.**
- ☺ **One week orientation in Denver the first part of September. Two weeks in D.C. to compile rough draft. A very interactive process. Some of the best field people in the two agencies.**
- ☺ **EIS Core Team, together with a select few of the regional team members, continued with the draft EIS until the interagency peer review in late November.**
- ☺ **Since then, we are playing "catch up" with Secretary Babbitt.**

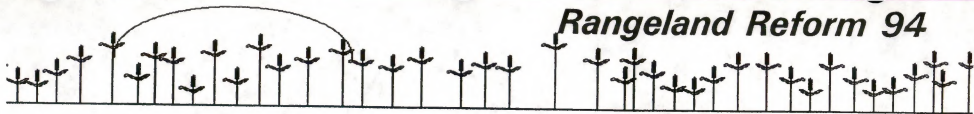




## ***Rangeland Reform 94***

### **SUMMARY OF NATIONAL STANDARDS AND GUIDELINES (S&G's) FIELD TEST**

- 1. Five Locations: Prineville, Richfield, Cody, Salmon, and Socorro the week of September 13-19, 1993.**
- 2. Test Objectives:**
  - ☺ **The applicability, completeness, and utility of the Rangeland Reform national S&G's and associated checklists.**
  - ☺ **The conformity of local land use plans with the Rangeland Reform proposals.**
  - ☺ **The area or regional social, economic, and environmental impacts of the Rangeland Reform components including: 1) the grazing fee, 2) the proposed regulatory changes and additions, and 3) the national S&G's for grazing.**
  - ☺ **The compatibility of the Rangeland Reform S&G's with PACFISH.**



## ***Rangeland Reform 94***

### **Objective 1: National Standards and Guidelines (S&G's) for Grazing in Rangeland Ecosystems and Associated Checklists.**

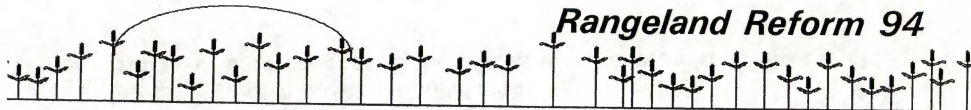
☺ Regarding the upland checklist, all teams were hampered by a lack of user instructions, definitions, and the black and white "yes/no" format. While certainly a good start, the uplands checklist needs much more development and testing.

☺ Teams stressed the need for full interdisciplinary participation in the field when using the checklist. It cannot be filled out in the office.

☺ Teams found the Riparian-Wetland checklist to be useful to assess functionality. Refer to TR 1737-9 Riparian Area Management. Aquatic checklist was not useful.

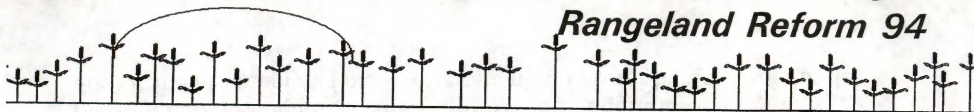
☺ All teams recognized that the S&G's were a very important component of the Rangeland Reform package, and recommended that they be analyzed in the EIS without the various checklists.

☺ Proposed team changes to the S&G's were incorporated into the EIS.



## **Objective 2: The Conformance of Local Land Use Plans with Rangeland Reform Proposals**

- ☺ **LUP conformance reviews completed on all RMP's/MFP's in NM, OR, UT, WY. Detailed instructions were not provided to the reviewers.**
- ☺ **Wide difference among the states: 1) Oregon - 9/11, 2) Utah - 9/16, 3) New Mexico - 2/11, 4) Wyoming - 5/12.**
- ☺ **All states felt their LUPs could be brought into conformance within 2 years of the Rangeland Reform ROD.**
  - ◆ **Most plans could be amended on a statewide basis.**
  - ◆ **Workload would be substantially reduced if the Bureau Planning Regulations are revised and simplified as planned.**



## ***Rangeland Reform 94***

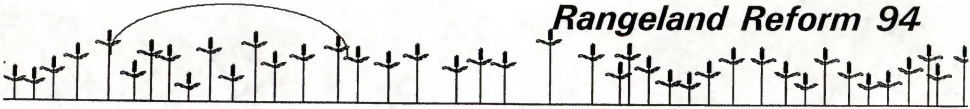
### **Objective 3: The Regional Social, Economic, and Environmental Impacts of Rangeland Reform.**

☺ Last fall, the Test Teams found "cautious optimism" in the field concerning the perceived direction for Rangeland Reform.

☺ The three elements most often identified as having positive environmental impacts were:

- ◆ national standards and guidelines
- ◆ full force and effect
- ◆ conservation use

## ***Rangeland Reform 94***



### **PROPER FUNCTIONING CONDITION - UPLANDS**

#### **Definitions:**

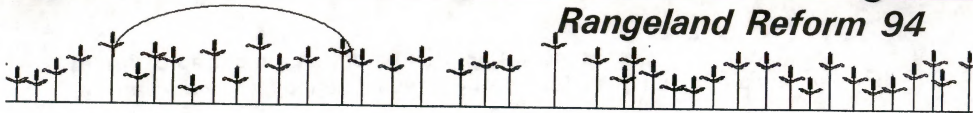
☺ **Proper Functioning Condition** - Existing vegetation and ground cover maintain soil conditions capable of sustaining natural biotic communities. The functioning condition of uplands is influenced by geographic features, soil, water, and vegetation.

☺ **Functioning at Risk** - Properly functioning, but a soil, water, or vegetation attribute makes the area susceptible to degradation and lessens its ability to sustain natural biotic communities. Uplands are particularly at risk if their soils are susceptible to degradation. Livestock grazing, past or present, may increase the risks.

☺ **Not Functioning Properly** - Uplands are considered to be in nonfunctioning condition when the existing vegetation and ground cover do not maintain soils capable of sustaining natural biotic communities.



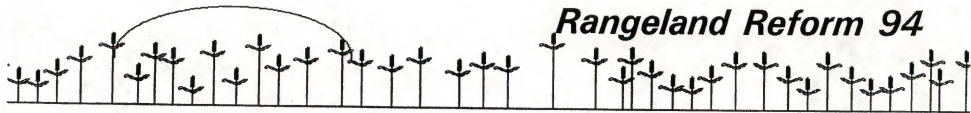
## *Rangeland Reform 94*



### **PFC FOR UPLANDS (CONTINUED)**

#### **Baseline Information:**

- ☺ Not hard data - simply a starting point against which one can measure the relative difference between alternatives.
- ◆ Problems with the field request for information sent out from Denver.
- ◆ Estimates for rate of change were developed through the professional judgement of BLM and Forest Service specialists.
- ◆ Gary D. will present % change for the management alternatives.



## **PROPER FUNCTIONING CONDITION - RIPARIAN**

### **BLM TR 1737-9 - Riparian Area Management**

- ☺ Outlines a process to assess PFC.
- ☺ Served as the conceptual basis for the approach to assess uplands.

EIS acres in the functioning categories derived from BLM's annual riparian report for FY 93.

- ☺ For sake of the analysis, the unknown category was "prorated" into the other three categories (PFC, FAR, NF).

Anticipated response of riparian resources to various management alternatives was determined by 11 fishery and wildlife biologists.

- ☺ Response of riparian vegetation to proposed management was key factor to determine impacts on wildlife resources.

## ***Rangeland Reform 94***



### **ECOLOGICAL STATUS**

**"Current" ecological status on 81.8 million acres at end of FY 92.**

- ☺ **Ecological Site Inventories are mostly 10 to 15 years old.**
- ☺ **New inventories average 1 to 2 million acres per year.**

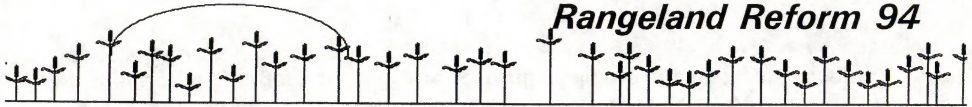
**45.4 million acres have a variety of other inventories, 31.2 million acres are assessed using professional judgement, and no ecological status on 6.8 million acres of nonnative seedings and annual rangelands.**

- ☺ **Condition assessment primarily based on a livestock forage value rating.**

**The percentages of ecological seral stages reflected in the "known" ESI data also represents the "unknown" acreage for the purpose of the EIS analysis.**

- ☺ **Seral stage projections for each alternative are based on the professional judgement of the interdisciplinary teams of resource specialists.**

## *Rangeland Reform 94*



### **TREND**

BLM has trend information on 140.9 million acres at end of FY 92. An additional 24.2 million acres is recognized as being undetermined.

- ☺ **Apparent trend (67%):** A one-time measure of rangeland characteristics. Provides a picture of the situation at the time of measurement.
- ☺ **Monitored trend (33%):** The evaluation of rangeland site characteristics over a longer period of time to see if an area is improving, deteriorating, or static.
- ☺ **Data source:** BLM's Annual Rangeland Report for FY 92.
- ☺ **Trend projections for each alternative are based on the professional judgement of the interdisciplinary teams of resource specialists.**



### **FOREST SERVICE RANGELAND STATUS AND TREND**

Land management objectives are established at the individual national forest level. A new program to evaluate how rangeland activities progress toward better condition of rangeland ecosystems was implemented in 1992.

- ☺ Acres meeting forest plan objectives.
- ☺ Acres moving toward forest plan objectives.
- ☺ Acres not meeting or moving toward forest plan objectives.
- ☺ Acres of undetermined status (unknown).

Managers used existing inventories, monitoring data, and professional judgement.

- ☺ Reliability of estimates varies widely depending on available data and personal knowledge.

The acres of "undetermined status" were prorated into the other three categories based on the ratio of acres in those "known" categories.



## ***Rangeland Reform 94***

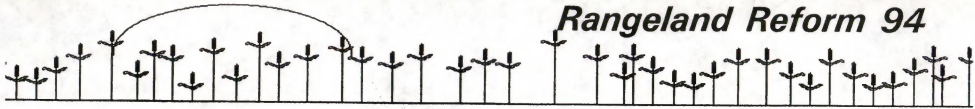


**AUM'S**

**Data Source: BLM's Public Land Statistics, 1991, and the Forest Service Grazing Statistical Summary for FY 1992.**

☺ Represents actual AUM's sold by the agencies.

# ***Rangeland Reform 94***



**Common among alternatives**

**Vegetation**

**Wildlife**

**Wild Horses and Burros**

**Recreation**

**Economics**

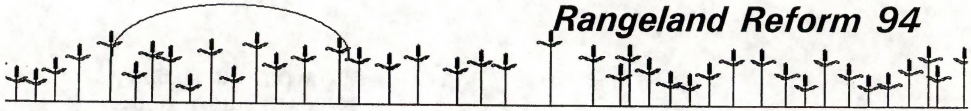
**Alternative Specific**

**Time Frames**

**Short Term: 5 Years**

**Long Term: 20 Years**

## Rangeland Reform 94



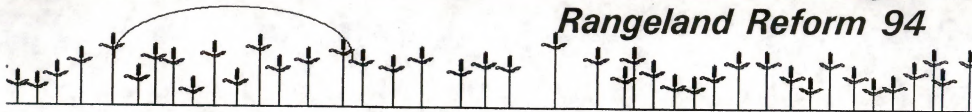
### Vegetation

Areas taken over by invading <sup>alien species?</sup> ~~annuals~~ or areas with high density juniper or sagebrush would not improve significantly without vegetation manipulation

Ecological status and trend would not change significantly in the short term

In the short term functioning uplands would most notably improve only in the Environmental Enhancement and No Grazing alternatives

## ***Rangeland Reform 94***

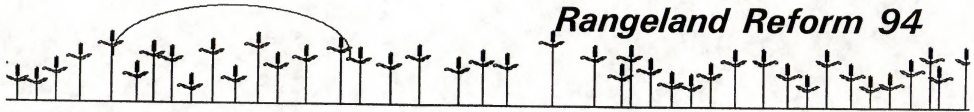


**Upland improvements would be most apparent in areas with 12 inches or more of annual precipitation**

**The desired plant community (DPC) concept would be implemented and the DPC would not necessarily be the potential natural community**

**The current trend for uplands is slightly upward and the current trend for riparian is downward**

## ***Rangeland Reform 94***



### **Wildlife**

**Improved riparian condition would substantially benefit aquatic resources**

**Increased structural diversity of vegetation benefits wildlife and biodiversity**

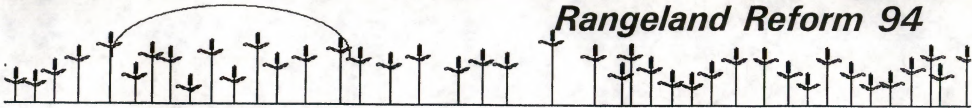
**Increases in vegetation benefit the functionality of riparian areas and riparian associated wildlife**

**Habitat changes resulting from invasions of exotic species would offset positive changes in some areas**

**Special Status Species would increase**

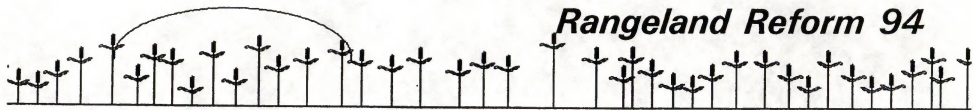


## ***Rangeland Reform 94***



**Big game populations would continue to increase**

**Nonconsumptive use of wildlife will continue to rise and become a major factor in future management**



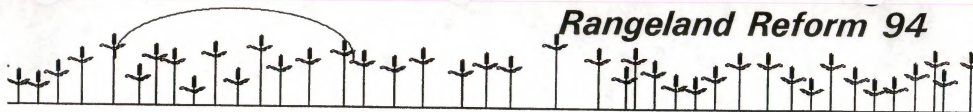
## ***Rangeland Reform 94***

### **Wild Horses and Burros**

- Standards and Guidelines for livestock grazing do not apply directly to managing wild horses and burros**

**Appropriate management levels (AML) would remain constant**

**Wild horse and burro overgrazing is not within the scope of this EIS**



## **Recreation**

**Current livestock grazing generally degrades the quality of recreation user experiences**

**The diversity of recreation users and uses is increasing**

**Intensified grazing management needed to control livestock grazing requires an increase in management facilities and structures**

**Recreation users are becoming increasingly sensitized to intrusions, including livestock and structural range improvements**

**Sensitive recreation areas include: developed recreation sites, national recreation areas, national conservation areas, components of the national and wild and scenic rivers system, ACECs important to recreation users**



## ***Rangeland Reform 94***

### **Economics**

**Demand for forage on public lands remains constant across all fee alternatives**

**Some current operations may not continue with higher fees, but the demand for that forage would be acquired by another operation**

**Grazing fee receipts will be distributed as currently authorized by law**



## ***Rangeland Reform 94***

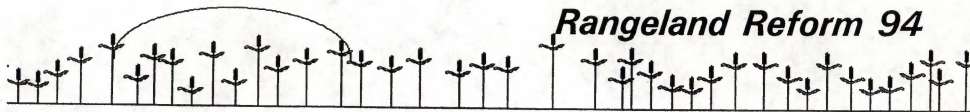
### **Current Management**

**Funding would remain constant**

**Management priorities for the rangeland program would remain the same**

**Long term ranch and rural economic trends would continue**



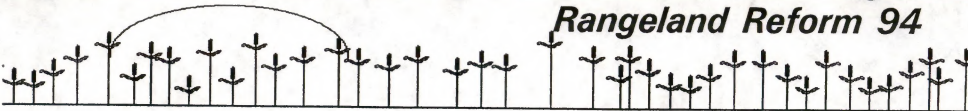


## ***Rangeland Reform 94***

### **Proposed Action**

**Funding would increase due to the increased fee**

***X* Nonfunctioning areas would not be grazed**



## ***Rangeland Reform 94***

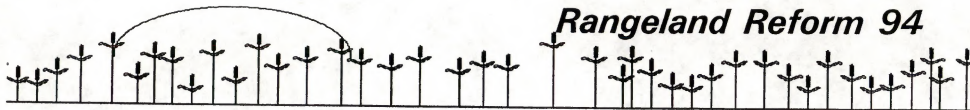
### **Livestock Production**

**Funding would increase because of the increased grazing fee**

**This alternative is directed toward local control**

**Grazing Advisory Board recommendations must conform to law, regulations, and LUPs**

## ***Rangeland Reform 94***



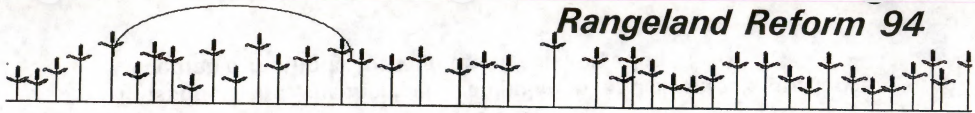
### **Environmental Enhancement**

**Funds would be constant**

**Grazing would continue in areas that are functioning properly**

**Grazing would not occur in: nonfunctioning areas, functioning at risk areas, and the undetermined areas**

## ***Rangeland Reform 94***



**# No grazing would be allowed in: designated wilderness, BLM recommend wilderness, forest plan recommend wilderness, developed recreation sites, areas where grazing has conflict with areas of designated critical habitat, and areas of national and historical cultural significance**

**Additional force would not be allocated to livestock but instead to satisfy state wildlife agencies big game objectives**

**Grazing administration costs and workloads would increase**

**Funding for fencing of eligible cultural sites and other sensitive areas excluded from grazing would continue at current levels**



## **No Grazing**

**30% of 1990 funding levels**

**Trailing permit authorizations would continue**

**3-year phase in**

**Livestock control from adjacent lands will be the responsibility of those land owners**

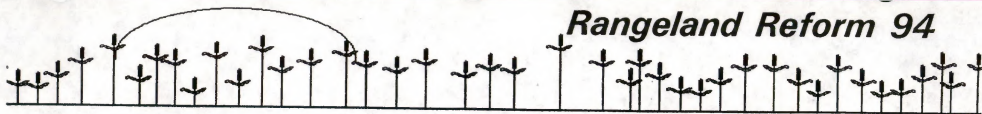
**Removal of management facilities for livestock grazing would be the responsibility of the administering federal agency**

**Operators who lose their grazing privileges will be permitted to salvage their RI investments**

**Prescribed fire, mechanical manipulation and livestock grazing are acceptable methods for vegetation manipulation**

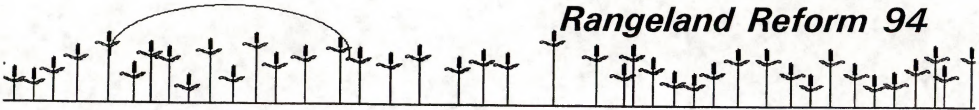


## ***Rangeland Reform 94***



### **Environmental Consequences**

#### **Chapter 4**



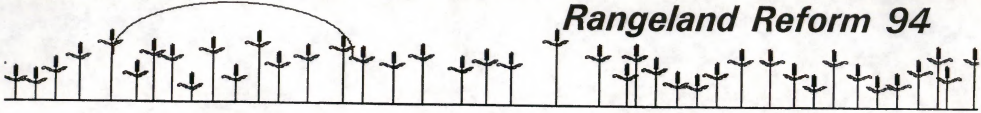
## ***Rangeland Reform 94***

### **Impact Summary**

#### **Fee Analysis Process**

**Ranch Size Used (AUM's):**

	<b>Herd Size</b>		
<b>Dependency</b>	<b>425 AU's</b>	<b>210 AU's</b>	<b>90 AU's</b>
<b>60%</b>	<b>3,060</b>	<b>1,512</b>	<b>648</b>
<b>30%</b>	<b>1,530</b>	<b>756</b>	<b>324</b>



## ***Rangeland Reform 94***

### **Impact Summary**

#### **Fee Analysis Process**

##### **Formulas Evaluated**

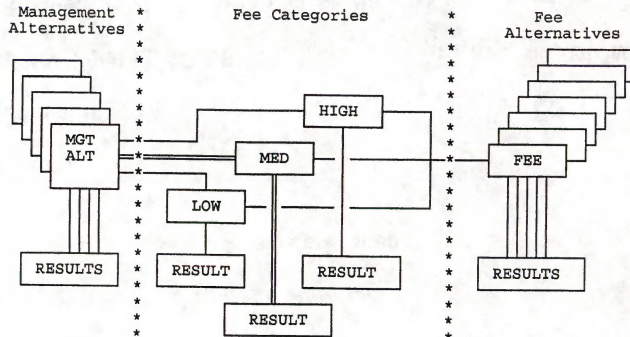
- PRIA fee level @ \$1.86 . . . . . **LOW**
- Proposed fee level @ \$3.96 . . . . . **MEDIUM**
- Weighted Average Regional fee @ \$6.38 . . . . . **HIGH**

**Competitive Bid amount = Regional Fee amount**

# Rangeland Reform 94

## Impact Summary

### Analysis Process



### **Impact Summary**

#### **Climate**

- Will not be affected by any alternative

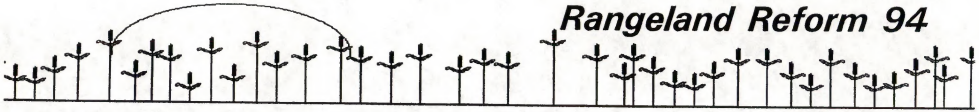
#### **Air Quality**

- Would not be significantly affected under any alternative
- Impacts would be temporary and small

#### **Grazing Administration**

- Number of base property leases would decrease as the surcharge reduces profitability



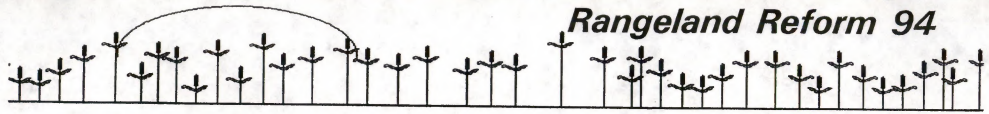


## ***Rangeland Reform 94***

### **Impact Summary**

#### **Upland Vegetation**

	<b>&gt; Late Seral</b>	<b>Trend</b>
<b>Current Mgmt</b>	<b>+ 11%</b>	<b>+ 10%</b>
<b>Proposed</b>	<b>+ 16%</b>	<b>+ 21</b>
<b>Livestock Production</b>	<b>+ 21%</b>	<b>+ 15%</b>
<b>Environmental Enhancement</b>	<b>+ 24%</b>	<b>+ 25%</b>
<b>No Grazing</b>	<b>+ 27%</b>	<b>+ 8%</b>



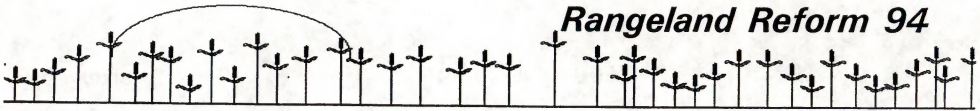
## ***Rangeland Reform 94***

### **Impact Summary**

#### **Upland Proper Functioning Condition**

	<b>Functioning</b>	<b>At Risk</b>	<b>NonFunctioning</b>
<b>Current Mgmt</b>	<b>+ 30%</b>	<b>- 55%</b>	<b>0</b>
<b>Proposed</b>	<b>+ 65%</b>	<b>-100%</b>	<b>-60%</b>
<b>Livestock Production</b>	<b>+ 40</b>	<b>- 75</b>	<b>-15%</b>
<b>Environmental Enhancement</b>	<b>+ 65</b>	<b>-100%</b>	<b>-60%</b>
<b>No Grazing</b>	<b>+ 55</b>	<b>- 90%</b>	<b>-30%</b>

# Rangeland Reform 94

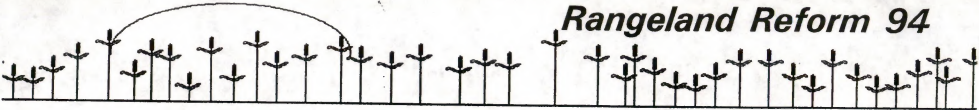


## Impact Summary

*Use acres  
and graphs.*

### Riparian Proper Functioning Condition

	Functioning	At Risk	NonFunctioning
Current Mgmt	- 3%	- 1%	+ 7%
Proposed	+ 27%	-11%	-20%
Livestock Production	- 8%	- 2%	+ 18%
Environmental Enhancement	+ 71%	-30%	-53%
No Grazing	+ 91%	-38%	-68%



## ***Rangeland Reform 94***

### **Impact Summary**

#### **Authorized Livestock Forage**

---

<b>Current Mgnt</b>	<b>- 18%</b>
<b>Proposed</b>	<b>- 21%</b>
<b>Livestock Production</b>	<b>- 11%</b>
<b>Environmental Enhancement</b>	<b>- 31%</b>
<b>No Grazing</b>	<b>-100%</b>

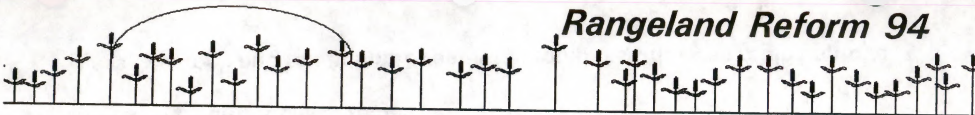


## ***Rangeland Reform 94***

### **Impact Summary**

	Wildlife	
	Upland Spp	Riparian Spp
<b>Current Mgnt</b>	<b>Benefits</b>	<b>Benefits</b>
<b>Proposed</b>	<b>Benefits</b>	<b>Benefits</b>
<b>Livestock Production</b>	<b>Benefits</b>	<b>Declines</b>
<b>Environmental Enhancement</b>	<b>Benefits</b>	<b>Benefits</b>
<b>No Grazing</b>	<b>Benefits</b>	<b>Benefits</b>



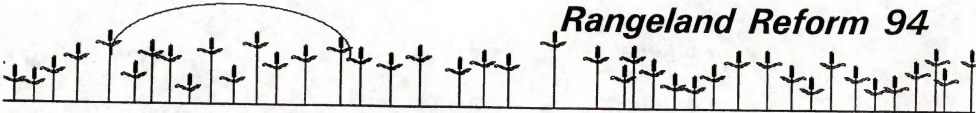


## ***Rangeland Reform 94***

### **Impact Summary**

#### **Special Status Species**

	<b>Upland Dependent</b>	<b>Riparian Dependent</b>
<b>Current Mgnt</b>	<b>Benefits</b>	<b>Benefits</b>
<b>Proposed</b>	<b>Benefits</b>	<b>Benefits</b>
<b>Livestock Production</b>	<b>Benefits</b>	<b>Declines</b>
<b>Environmental Enhancement</b>	<b>Benefits</b>	<b>Benefits</b>
<b>No Grazing</b>	<b>Benefits</b>	<b>Benefits</b>



## ***Rangeland Reform 94***

### **Impact Summary**

#### **Vegetation/Improvement Related**

##### **Wild Horse and Burro**

- Improve with conditions improving

##### **Recreation and Scenic Values**

- Alternatives that improve riparian and wildlife habitat will improve

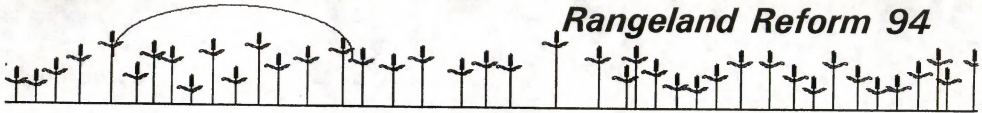
##### **Wilderness**

- Effects relate to effects on vegetation and watershed conditions

##### **Cultural and Paleontological Values**

- Less livestock and fewer improvements would disturb less would improve

# Rangeland Reform 94

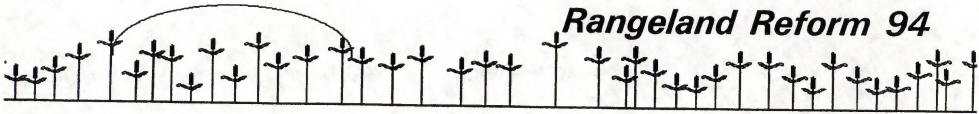


## Impact Summary

### Social Economic Conditions

(000,000)

	<u>Employment</u>	<u>Permit Value</u>	<u>Receipts</u>	<u>Community</u>
Current Mgmt	-0.4%	Length owned	+ \$53.7	Slight
Proposed	-0.4%	> Current Mgt	+ \$52.6	> Current
Livestock Production	-0.3%	< Proposed	+ \$62.1	Slight
Environmental Enhancement	-0.6%	> > Proposed	+ \$43.1	< \$\$
No Grazing	-0.5%	Eliminated	-\$30.8	< < \$\$

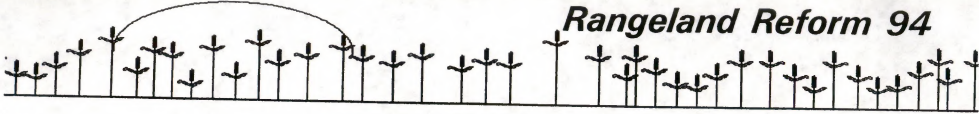


## ***Rangeland Reform 94***

### **Impact Summary**

#### **Ranch Analysis**

	<b>425 AU - 60%</b>	<b>90 AU - 30%</b>
<b>Current Mgmt</b>	<b>-\$15,000</b>	<b>-\$1,300</b>
<b>Proposed</b>	<b>-\$15,700</b>	<b>-\$1,300</b>
<b>Livestock Production</b>	<b>-\$14,900</b>	<b>-\$1,400</b>
<b>Environmental Enhancement</b>	<b>-\$16,500</b>	<b>-\$1,500</b>
<b>No Grazing</b>	<b>-\$22,800</b>	<b>-\$2,400</b>



## ***Rangeland Reform 94***

### ***Remaining Actions after Signing (April 15, 1994)***

#### **ACTION**

#### **DATE**

**Public Comment Period**

**7/15/94**

**(Will need review teams starting 30 days into period)**

**(Will need Field Support for this effort)**

**Comment Extension**

**8/1/94**

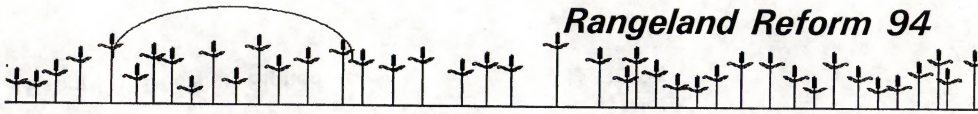
**Final EIS**

**11/30/94**

**Record of Decision Signed**

**12/30/94**





## ***Rangeland Reform 94***

### ***Regional NEPA Requirements***

**The national Rangeland Reform 94 EIS IS NOT the end**

**Still will require the NEPA process in implementing the reform for Regional/State Standards and Guidelines**

**This EIS product should be the model for future NEPA actions using the team concept**

Table 2-8

2 Table 2-8: IMPLEMENTATION REQUIREMENTS FOR THE MANAGEMENT  
3 ALTERNATIVES (OTHER THAN CURRENT MANAGEMENT)

CHANGE AGENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRON- MENTAL ENHANCEMENT	NO GRAZING
STANDARDS AND GUIDELINES	BLM- Regulation Change FS-Policy Change	BLM-Policy Change FS-No Change	BLM-Policy Change FS-Policy Change	BLM-No Change FS-No Change
LEASING	BLM- Regulation Change FS-No Change	BLM- Regulation Change FS- Regulation Change	BLM- Regulation Change FS-No Change	BLM- Regulation Change FS-No Change
FOREIGN CORPORATIONS	BLM-No Change FS- Regulation Change	BLM- Legislation FS- Legislation	BLM-No Change FS- Regulation Change	BLM- Regulation Change FS- Regulation Change
DISQUALIFICATION	BLM- Regulation Change FS- Regulation Change	BLM- Regulation Change FS- Regulation Change	BLM- Regulation Change FS- Regulation Change	BLM- Regulation Change FS- Regulation Change
PROHIBITED ACTS	BLM- Regulation Change FS-No Change	BLM-No Change FS-No Change	BLM- Regulation Change FS-No Change	BLM- Regulation Change FS-No Change
GRANT POLICY	BLM- Regulation Change FS-Policy Change	BLM- Regulation Change FS-Policy Change	BLM- Regulation Change FS-Policy Change	BLM- Regulation Change FS-Policy Change

CHANGE AGENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
PERMIT TENURE	BLM-No Change FS-No Change	BLM-Change in FLPMA FS-Change in NFMA	BLM-No Change FS-No Change	BLM-Regulation Change FS-Regulation Change
UNAUTHORIZED USE	BLM-Regulation Change FS-Regulation Change	BLM-Regulation Change FS-Regulation Change	BLM-Regulation Change FS-Regulation Change	BLM-No Change FS-No Change
NONUSE	BLM-Regulation Change FS-No Change	BLM-Regulation Change FS-Regulation Change	BLM-Regulation Change FS-Regulation Change	BLM-Regulation Change FS-Regulation Change
SUSPENDED NONUSE	BLM- No Change FS-N.A.	BLM-No Change FS-N.A.	BLM-Regulation Change FS-N.A.	BLM-Regulation Change FS-N.A.
WATER RIGHTS	BLM-Policy Change FS-No Change	BLM-No Change FS-Policy Change	BLM-Policy Change FS-No Change	BLM-Policy Change FS-No Change
RANGE IMPROVEMENT OWNERSHIP	BLM-Regulation Change FS-No Change	BLM-No Change FS-Policy Change	BLM-Policy Change FS-No Change	BLM-Policy Change FS-No Change
RANGE BETTERMENT FUND DISTRIBUTION	BLM-Policy Change FS-No Change	BLM-Policy Change FS-Policy Change	BLM-Regulation Change FS-No Change	BLM-Policy Change FS-Policy Change
RANGE BETTERMENT FUND USE	BLM-Regulation Change FS-Policy Change	BLM-No Change FS-No Change	BLM-Regulation Change FS-Policy Change	BLM-Regulation Change FS-Regulation Change
EXPEDITED APPEALS	BLM-Regulation Change FS-No Change	BLM-No Change FS-No Change	BLM-Regulation Change FS-No Change	BLM-No Change FS-No Change

CHANGE AGENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRON- MENTAL ENHANCEMENT	NO GRAZING
AGING ADVISORY BOARDS	BLM- Regulation Change FS- Regulation Change	BLM- Regulation Change FS- Legislation	BLM- Regulation Change FS- Regulation Change	BLM- Regulation Change FS- Regulation Change
SWITABILITY	BLM-No Change FS-No Change	BLM-No Change FS-No Change	BLM- Legislation FS- Legislation	BLM- Legislation FS- Legislation
SERVICE CHARGE/ TRANSACTION FEE	BLM- Regulation Change FS- Regulation Change	BLM- Regulation Change FS-Policy Change	BLM-No Change FS- Regulation Change	BLM- Regulation Change FS- Regulation Change
RANGELAND ECOSYSTEMS	BLM- Regulation Change FS- Regulation Change	BLM-Policy Change FS-Policy Change	BLM-Policy and Regulation Change FS-Policy and Regulation Change	BLM-Policy Change FS-Policy Change

Table 2-7: DESCRIPTION OF FEE ALTERNATIVES

Elements	PRIA	Modified PRIA	BLM-FS Proposal	Regional Fees	Federal Forage Fee	PRIA with Surcharge	Competitive Bidding
BASE VALUE	\$1.23	\$1.23	\$3.96	\$4.68-\$10.26	3-yr. avg.	PRIA (\$1.23)	None
MINIMUM FEE	\$1.35	\$1.23	\$3.96	\$4.68-\$10.26	3-yr. avg.	PRIA (\$1.35)	Market driven
FACTORS AFFECTING FEE	BV FVI BCPI PPI	BV FVI BCPI ICI	BV  FVI	Regional BV FVI	WAPLLR NFCD PrLFVR NPD	PRIA fee, Admin. Surcharge	Demand
MAXIMUM ANNUAL FEE VARIATION	25%	25%	25%	25%	25%	Fee: 2*PRIA Surcharge 10%	Would vary
1993 CALCULATED FEE	\$1.86	\$3.69	\$4.28	\$5.05-\$11.08	\$2.36	\$3.72	Would vary

BV=Base Value; FVI=Forage Value Index; BCPI=Beef Cattle Price Index; PPI=Prices Paid Index  
 ICI=Input Cost Index; WAPLLR=Weighted Average of Private Land Lease Rates  
 PrLFVR=Ratio of WLGS Private Land Lease Rate to 1964-68 Base Year Private Land Lease Rate  
 NFCD=Nonfee Cost Differential; NPD=Ratio of Federal Permittee Cash Receipts to Nonfederal  
 Producers Cash Receipts; PRIA=Public Rangelands Improvement Act



## REGIONAL TEAM RATIONALE

The level of detail for the biological portion of the NEPA analysis for the August 93 Range Reform Draft EIS was questioned by numerous reviewers. It was felt that a draft document could be developed that would more fully assess regional differences with respect to the affected environment and subsequent environmental consequences for a broader range of EIS alternatives.

Initially, the regions were delineated on the basis of Hydrographic Units (large watersheds). This was done because the Standards and Guidelines were couched in terms of properly functioning condition. The "pure" watershed approach was rejected because we ended up with more units than we could realistically handle. The BLM's Physiographic Regions developed by Brown and Kerr, and Bailey's Ecoregion map were also assessed. Again, these were rejected because they resulted in too much detail for a national programmatic EIS of this nature.

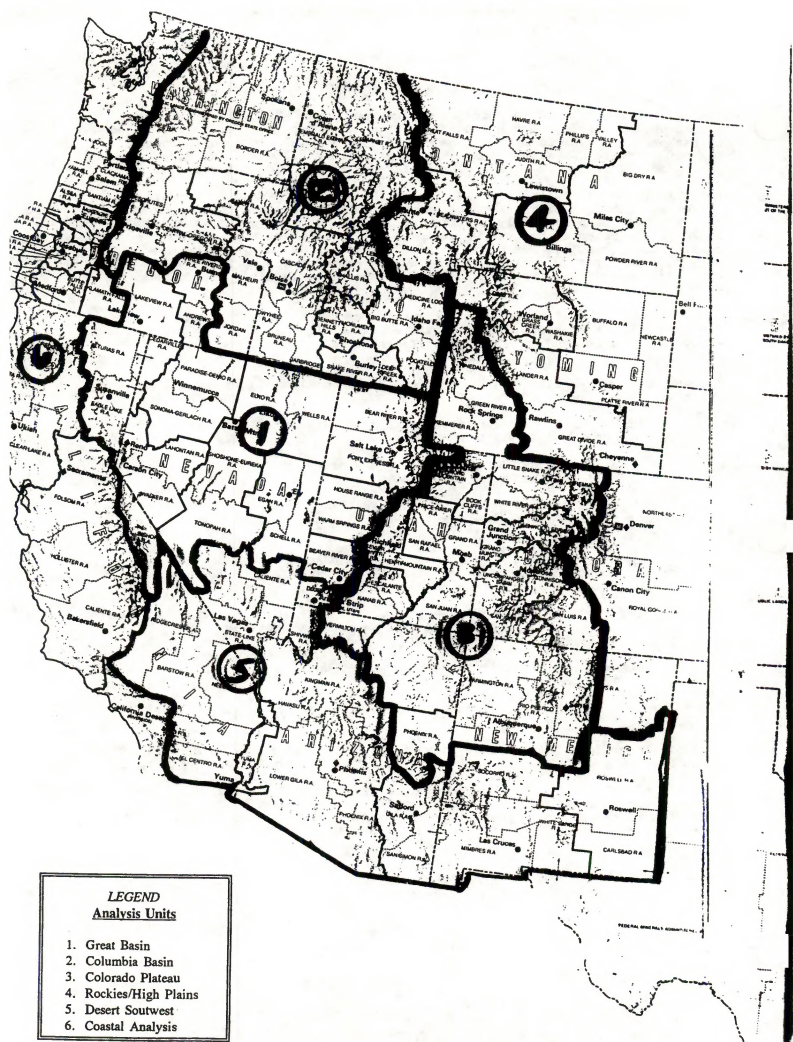
We settled on a model based on a combination of the major watersheds and the BLM physiographic regions. To facilitate data collection from the field, the analysis units were adjusted to generally coincide with the BLM resource area boundaries.

The analysis units, for the purpose of this NEPA analysis, are described as follows:

1. Great Basin: Northeastern California, Nevada\*, Southcentral Oregon, Western Utah. (Dan Rathbun, Team Leader)
2. Columbia Basin: Eastern Oregon, Eastern Washington, Idaho\*, Western Montana. (Janis VanWyhe, Team Leader)
3. Colorado Plateau: Eastern Utah, Western Colorado\*, Southwestern Wyoming, Northwestern New Mexico, Northeastern Arizona. (Tim Hartzell, Team Leader)
4. Rockies/High Plains: Montana\*, North Dakota, South Dakota, Wyoming, Eastern Colorado, Kansas, Nebraska, Western Texas, and Northeastern New Mexico. (Chuck Frost, Team Leader)
5. Desert Southwest (Hot Desert Region): Southern California, Southern Nevada, Southwestern Utah, Arizona\*, Southern New Mexico. (Jeff Rawson, Team Leader)
6. Coastal: California, Western Oregon\*, Western Washington. (Tony Danna, Team Leader)

\* These were the lead states for the purpose of developing the EIS analysis.

Regional interdisciplinary teams, comprising 8-10 individuals each, were set up to analyze the various EIS alternatives. Each team had representation from the Forest Service. The regional teams worked in Washington, D.C. for two weeks last fall. This enabled the EIS core team to work closely with them to maintain consistency among the various work groups. Based on the regional teams' work, the EIS core team, together with the team leaders, completed the initial compilation of the draft EIS document.



MEMO

To: A.D. Land and Renewable Resources (WO 200)  
From: Chief, Division of Rangeland Resources (WO 220)  
Subject: Standards and Guidelines Field Test

Attached is a summary of the field tests conducted at five different locations during the week of September 13-19, 1993. The field locations and the team leaders were as follows:

Prineville, Oregon- Jim Hancock (D.M. Prineville District)  
(Desert Southwest Ecoregion)

Richfield, Utah- Jerry Goodman (D.M. Richfield District)  
(Colorado Plateau/Great Basin Ecoregions)

Cody, Wyoming- Duane Whitmer (A.M. Cody Resource Area)  
(Rocky Mtns/High Plains Ecoregion)

Salmon, Idaho- Dave Krosting (A.M. Lemhi Resource Area)  
(Columbia Basin Ecoregion)

Socorro, New Mexico- Malcolm Schnitker (DSD Resources, NMSO)  
(Columbia Basin Ecoregion)

The objectives of the test were to assess:

1. The applicability, completeness, and utility of the RR 94' national standards and guidelines and associated checklists
2. The conformity of local land use plans with RR 94' proposals
3. The area or regional social, economic, and environmental impacts of the Rangeland Reform 94' components including:
  - the grazing fee
  - the proposed regulatory changes and additions
  - the national Standards and Guidelines for grazing
4. The compatibility of the RR 94' Standards and Guidelines with those of PACFISH (Idaho and Oregon)

Typically, the local Area Manager and his/her principle participated in the test with at least one representative from the WO-220 Division of Rangeland Resources. All but one team (Salmon) included an individual who was involved in developing the RR 94' standards and guidelines. Finally, each team also

included a FS representative who was involved, and provided valuable assistance to the test effort.

There was a high degree of interest and involvement in the field tests. Besides yourself, Lee Otteni and State Directors Bob Lawton, Ray Brubaker, and Jim Parker were also able to participate. We believe it was a critical test and that the results will provide us with ideas and information which will strengthen the Rangeland Reform 94' proposal.

The test team leaders and teams members are to be commended for doing an outstanding job in the short-time frames necessitated by the RR 94' schedule.

The results for each of the four test objectives are summarized followed by a list of recommendations. The questionnaires and instructions used for the field test are attached.

**Objective 1:    National Standards and Guidelines for Grazing in Rangeland Ecosystems and associated checklists**

By-and-large, with some relatively minor revision, all five teams expressed overall confidence in the first part of the Standards and Guidelines for ... "General Application to All Components of the Rangeland Ecosystem." This level of comfort did not extend to the second part... "S&G's for Unhealthy Ecosystems." All teams felt that it was confusing, redundant, inordinately subjective, and added little to the proposal. By simply adding a couple of items to the general list, this part can be deleted.

The section entitled "Implementation Steps for the Clean Water Act" can also be deleted by including more specific language in the general section consistent with the recommendations of the field test teams and with suggestions of the Environmental Protection Agency's Assessment and Watershed Protection Division.

Regarding the checklists in general, all teams were hampered by the lack of "user instructions", definitions, and by the manner in which the checklist questions were presented: ( yes/no- "we have no bananas") The team leaders also stressed the need for full interdisciplinary participation in the field when using the checklist: it simply cannot be reliably done by a single individual or in the office.

Generally, the teams found the Riparian-Wetland Checklist to be a useful instrument for assessing riparian functionality. This is not surprising since this checklist has been carefully developed over the past couple of years and has already received considerable testing and refinement. Most of the teams had difficulty using the Aquatic checklist: many of the rating factors are the same as those in the Riparian checklist, and in



the field, it is seldom clear where the riparian area ends and the aquatic zone begins. We suggest including the necessary aquatic elements in the Riparian checklist and calling it the "Riparian/Aquatic" checklist.

While all of the teams recognize the desirability of developing a procedure and possibly a checklist for assessing Upland functionality, all agreed that it is much more difficult and complex than determining Riparian/Aquatic functionality. The proposed "Uplands Checklist", while a good start, is far from being adequate and needs much more development and testing.

The team leaders were unanimous in their recommendations that while the "National Standards and Guidelines for Grazing in Rangeland Ecosystem" is an integral, if not the most important component of Rangeland Reform 94', and should be analyzed in the draft EIS, the checklists should not. They recommend that a revised Riparian-Wetland/Aquatic Functional Checklist be shown in the appendix but only as one example of a technique for making a rapid assessment of functionality.

The proposed revision to the "Standards and Guidelines for General Application to All Components of the Rangeland Ecosystem" is as follows (changes underlined or bold)

1. Grazing management practices which will assist the recovery of threatened or endangered species, and prevent species listed as Category 1 or 2 from becoming threatened or endangered, will be implemented. **Emphasis will be toward maintaining or improving plant and animal habitat to avoid future listing.**
2. Grazing practices (e.g., Best Management Practices) that protect public health and welfare, maintain, restore or enhance water quality and result in water quality which is necessary to meet or exceed state water quality standards, will be implemented through terms and conditions of permits and leases.
3. Grazing schedules will include rest period(s) during times of critical plant growth or regrowth. The timing and duration of rest periods will be determined by the local authorized officer administering the grazing authorization.
4. The authorized officer will adjust grazing use, which may include total rest, before the next grazing season where assessments or other data reveal that key resources or watershed functional requirements are not being met because of livestock overuse.
5. Continuous season-long grazing will be authorized only when it has been demonstrated to be consistent with



achieving properly functioning condition and meeting identified resource objectives.

6. Pesticides will be used on rangeland only where target species are well defined, there is minimal risk to nontarget species, and research or experience shows other alternatives are not effective.

7. Terms and conditions of each permit or lease will include numbers, kind, and class of livestock; season(s) of use; periods of deferment and/or rest, or other strategies required to achieve resource objectives.

8. Development of springs and seeps or other projects affecting water and associated resources will be designed to maintain or enhance the ecological values of those sites.

9. Grazing will be authorized on designated ephemeral (annual and perennial) rangeland only if reliable estimates of production have been made, an identified level of annual growth or residue to remain onsite at the end of the grazing season has been established, and adverse effects on perennial species will be avoided.

10. Riparian-wetland objectives will be met by locating livestock management facilities (corrals or holding facilities, wells, pipelines, fences) or livestock management practices (salting and supplement feeding) outside riparian-wetland areas wherever possible. Where existing livestock management facilities or practices do not meet management objectives, appropriate action will be taken which may include relocation or removal of the facilities or practices.

11. Utilization or residual vegetation targets will be established and applied which will:

- a. Maintain, improve, or restore both herbaceous and woody species (where present or potential exists) to a healthy and vigorous condition and facilitate reproduction and maintenance of different age classes in the desired riparian-wetland and aquatic plant communities.
- b. Leave sufficient vegetation biomass and plant residue (including woody debris) to provide for adequate sediment filtering and dissipation of stream energy for bank protection.

**Objective 2:**    The conformance of local land use plans with RR '94 proposals

The land use plan conformance reviews were completed the week of September 7-10, on all RMPs/MFPs in each of four test states (NM, OR, UT, WY). Detailed instructions were not provided to the reviewers (typically state P&E coordinator) so it is likely that considerable differences in interpretations about "compatibility" is inherent in these assessments. There was considerable differences among the states sampled:

<u>State</u>	<u>No. Compatible</u>
Oregon	9/11
Utah	9/16
New Mexico	2/11
Wyoming	5/12

The situation may be better than it appears: All states felt their plans could be brought into conformance within a two-year period following completion of the RR'94 provided work and scheduling priorities can be adjusted and necessary resource allocated to this task. The team leaders felt that most of the needed plan amendments could be done on statewide basis to considerably speedup the process. Also, the workload required to bring the plans into conformance could be substantially reduced if the Bureau's planning regulations are revised and simplified as planned.

**Objective 3:**    The regional social, economic, and environmental impacts of Rangeland Reform '94.

The enclosed worksheet was used in an attempt to obtain feedback about field perceptions of the impacts of RR 94'. By-and-large, field staffs were very excited about the new directions the Bureau is taking and cautiously optimistic about it's chances of succeeding. Each team spent a day familiarizing themselves with RR 94' and discussing the potential impacts' using the checklist to stimulate discussion. The RR 94' elements most often identified as having positive environmental impacts were:

- national standards and guidelines
- full-force and effect
- conservation use

The test team leaders met with the EIS Core Team to provide feedback about potential RR 94' impacts. Very little in the way of new information was identified but it was a good opportunity for field managers to provide a different perspective.

**Objective 4:    The compatibility of the PACFISH Standards and Guidelines with RR'94 Standards and Guidelines.**

Two of the field test teams (Prineville, OR. and Salmon, ID.) were also charged with evaluating the compatibility of the PACFISH S&Gs for rangeland, riparian, and watershed with the RR'94 S&Gs. They also discussed the PACFISH definition of Riparian Habitat Conservation Areas (RHCA) and it's applicability to eastside non-forested ecosystems.

The PACFISH S&Gs cover all activities that might occur in a watershed while the RR 94 S&Gs only deal with livestock grazing. The consensus of the two teams is that if the RR 94' S&Gs are met it would most certainly meet or exceed the PACFISH S&Gs since the RR 94' S&Gs are much more comprehensive. The problem of defining the RHCAs for non-forested ecosystems will be solved if the 100-year flood plain becomes the standard in lieu of the other RHCA criteria.

Both teams found the PACFISH S&Gs to be totally compatible with those of RR'94. We found a high degree of awareness of the PACFISH issues in both Prineville and Salmon. Both R.A. staffs have made excellent progress in making positive management changes in affected allotments and significant improvement was obvious in every drainage we visited and evaluated. Through the Section 7 consultation process, both areas are well underway toward making major changes for improving riparian areas.

**SUMMARY OF FIELD TEST TEAM LEADERS RECOMMENDATIONS**

1. Adopt the General Standards and Guidelines as revised and to include:
  - some elements of the "Unhealthy Ecosystems S&G's
  - additional language from the Clean Water Act
2. Delete the remaining S&Gs for "Unhealthy Ecosystems"
3. Adopt the "Standard Riparian-Wetland Functional Checklist" but include appropriate elements of the Aquatic Checklist. It should be called the "Standard Riparian-Wetland/Aquatic Functional Checklist"
  - delete the redundant elements of the Aquatic Checklist
  - use the "Riparian-Wetland/Aquatic Functional Checklist" only as an example in the EIS
4. Further develop and refine the "Standard Uplands Functional Checklist" but do not exhibit in the EIS.

Our intent is that the field test team leaders will continue to provide field review and a field management perspective as we:  
(1) fine -tune the national standards and guidelines, (2) develop a process for supplementing the national S&G's with

ecoregion or more local S&Gs, and (3) outline a process for developing rapid assessment procedures for upland rangelands utilizing broad involvement of BLM/FS field specialists, academia, other agencies, and professional societies such as the Society for Range Management.

We propose to complete an Uplands Functional Checklist within 6 to 9 months but prior to issuing the Rangeland Reform 94' EIS Record of Decision. We have tentatively planned, and request approval, to meet with the five team leaders in Denver on Nov 15 & 16 to develop a plan to accomplish these tasks.

*Alan J. Eickert*  
(acting)

#### 4 Attachments

- 1 - Letter Outlining Field Test Process
- 2 - Definition and Handbook Guidance On Conformance
- 3 - Land Use Plan Conformance Checklist
- 4 - Checklist And Questions On Impacts Of RR'94

TO: Range Reform 94' Field Test Team Leaders  
 FR: Glen Secrist, National Range Program Leader  
 SUBJ: Field Tests: September 13-17

I appreciate your commitment to this effort. It was most helpful to have all of you together here in Washington last week to plan the actual field test and to be able to communicate some of the new direction for the Bureau. You have already received a copy of the questionnaire to be completed for each MFP/RMP in the test states (4). Attached to this cover letter is a checklist to guide you in determining the applicability and completeness of the national standards and guidelines, and for on-the-ground application of the checklist. As soon as they are available, I will provide you with suggestions from the EIS teamleaders that should be useful as you conduct the test and that will help your team better provide meaningful input to the EIS teams when the field exercise is complete.

Our intent is that at least one person from WO-220 staff (Hdqts or downsize) and one individual from the original S&G core group will participate in each test. Forest Service people assigned to the teams are as follows:

Idaho  
 J. Richard Ward  
 Leadore, ID  
 (208) 768-2371

New Mexico  
 Linney Warren  
 Roosevelt, AZ  
 (602) 467-3239

Oregon  
 Bill Pieratt  
 Prineville, OR  
 (503) 447-9575

Utah  
 Doug Reid  
 Fillmore, UT  
 (801) 743-5721

Wyoming  
 Jack Sanders  
 Cody, WY  
 (307) 527-6241

The following are points which will serve as a reminder to our discussions of last week:

1. While the emphasis is on obtaining feedback for the EIS, make note of any suggestions for strengthening or building on the S&G's or any other RR 94' measure.
2. Assure that the Area Manager and his/her principle staff are involved for the duration of the test.
3. Assure that a recorder is identified and that good notes are kept.
4. Allow for adequate discussion but keep the process moving.
5. Coordinate this test with the Forest Service person on your team. They will be participating as a team member in the exercise.

I encourage you team leaders to carefully review the Range Reform 94' document, particularly the standards and guidelines. The headings are important. It would be worthwhile to review the basic parts of the document with the team at the field location. The Washington office liason person can assist you with this review as well as providing the team with an overview of the Range Reform 94' proposal.

You should make arrangements to be here in Washington D.C. September 21-23. We will be summarizing and reviewing the test results and meet with the EIS teams to discuss the field tests. I will provide a more detailed agenda when I send you the EIS input suggestions.

The telephone number for WO 220 (Rangeland Resources) will change effective Sept. 7, 1993 to: (202) 452-7740 and FAX (202) 452-7701. Call me if you have any questions.



## Standards and Guidelines Field Test Process

### Office Component

The proposed national S&G's in Range Reform 94' will be evaluated by the test team addressing a series of questions to determine applicability, sufficiency and effectiveness at the test site. The results, in combination with similar tests being conducted at other field offices, is intended to evaluate the S&G's as national minimum requirements for "...livestock grazing in rangeland ecosystems" and for maintaining and/or improving ecosystem function. To assure consistency of the test results the general questions to be addressed will include the following:

1. Are the S&G's applicable for your area?
2. Are the S&G's sufficient for your area?
3. Will application of the S&G's be helpful in maintaining and/or improving ecological condition of grazing allotments?
4. Is it necessary or useful to supplement these national S&G's with regional or local S&G's? If so, give some examples.
5. Would the national S&G, if incorporated into terms and conditions of individual permits and leases, be effective in (a) bringing about greater compliance and (b) improving on-the-ground resource conditions?
6. Could ecosystem function be improved with additional \$100 funding, and fewer restrictions on the use of the funds?

### Field Component

The applicability of the standard riparian-wetland, aquatic, and upland functional checklists will be evaluated at each test office by using them in on-the-ground tests of at least 2 different grazing allotments in contrasting condition. This is intended to be a relatively simple test to evaluate applicability of the checklists as tools to establish and document functional condition of ecosystem components in an allotment and their relationship to grazing use by livestock. Except for the time frame of the field test, there is no restriction on the number of allotments to be tested.

1. Is (are) the checklist(s) adequate for assessing proper functioning condition of riparian-wetland, upland, and

aquatic ecosystem components?

2. Is (are) the evaluation provided by the checklist(s) consistent with the professional judgement of the Area Staff and/or available monitoring data?

3. What training is necessary for effectively using the checklist for assessing upland/riparian/aquatic functionality?

These questions are intended to assure that the general issues regarding the S&G's are addressed, and as stimulation for further discussion of the applicability of the S&G's as minimum national requirements. They are not intended to limit the scope of the test.

Team leaders should be aware that effective in-office evaluation of some of the S&G's may depend on the results of the field application of the checklists (ie. S&G's 4 & 5). It may therefore be good sequencing to do the field test of the checklists before discussing and answering the questions relative to the S&G's in general.

## CONFORMANCE

**§1601.0-5(b)** *Conformity or conformance* means that a resource management action shall be specifically provided for in the plan, or if not specifically mentioned, shall be clearly consistent with the terms, conditions, and decisions of the approved plan or plan amendment.

### **§1610.5-3** Conformity and Implementation

All future resource management authorizations and actions, as well as budget or other action proposals to higher levels in the Bureau of Land Management and Department, and subsequent more detailed or specific planning, shall conform to the approved RMP.

After a plan is approved or amended, and if otherwise authorized by law, regulation, contract, permit, cooperative agreement or other instrument of occupancy and use, the District and Area Manager shall take appropriate measures, subject to valid existing rights, to make operations and activities under existing permits, contracts, cooperative agreements or other instruments for occupancy and use, conform to the approved plan or amendment within a reasonable period of time. Any person adversely affected by a specific action being proposed to implement some portion of a resource management plan or amendment may appeal such action pursuant to 43 CFR 4.400 at the time the action is proposed for implementation.

If a proposed action is not in conformance, and warrants further consideration before a plan revision is scheduled, such consideration shall be through a plan amendment in accordance with the provisions of § 1610.5-5 of this title.

More detailed and site specific plans for coal, oil shale and tar sand resources shall be prepared in accordance with specific regulations for those resources: Group 3400 of this title for coal; Group 3900 of this title for oil shale; and part 3140 of this title for tar sand. These activity plans shall be in conformance with land use plans prepared and approved under the provisions of this part.

## PLAN MONITORING AND MODIFICATION

### Plan monitoring

--Purpose is to make sure we implement the plan and that it is meeting our needs.

- 1) mechanically track the management actions and implementation steps to be sure they are occurring.
- 2) evaluate the success of these actions in meeting the objectives set forth in the plan--how well are we doing?
- 3) assess if the plan is correct--are the plan decisions and objectives the right ones? Is the plan meeting our needs?

### Plan Modification

--how the plan may be changed.

- 1) plan maintenance--keeping the planning base current; no substantive change in plan decision, informal documentation.
- 2) plan amendment--when change to plan is warranted, but plan is still basically sound; formal documentation and public participation are required.
- 3) plan revision--when the plan no longer meets our needs, a whole new plan is prepared. Start again.

## 43 CFR 1610.5-4

### Maintenance

Resource management plans and supporting components **shall be maintained** as necessary to reflect minor changes in data. Such maintenance is **limited to further refining** or documenting a previously approved decision incorporated in the plan. Maintenance **shall not result in expansion in the scope of resource uses or restrictions, or change the terms, condition, and decisions of the approved plan.** Maintenance is not considered a plan amendment and **shall not require the formal public involvement and interagency coordination process** described under §§ 1610.2 and 1610.3 of this title or the preparation of an environmental assessment or environmental impact statement. Maintenance **shall be documented** in plans and supporting records.



# LAND USE PLAN CONFORMANCE CHECKLIST RANGELAND REFORM 94

District: \_\_\_\_\_  
 Resource Area: \_\_\_\_\_  
 Land Use Plan Name: \_\_\_\_\_  
 Date of Review: \_\_\_\_\_  
 Name of Reviewers: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## INSTRUCTIONS FOR FILLING OUT THE FORM:

Review land use planning documents including grazing decisions carried forward into RMPs. Determine if the land use plan (LUP) conforms or does not conform with information listed in the all the issues of Rangeland Reform 94. Place a check mark in the conformance or not in conformance column of the form. Indicate whether the 'standard/guideline' is in direct conflict with a plan decision, or is non-conforming because that standard is not discussed or is outside the range of issues considered during plan development. In the remarks column, indicate the section, page, and column where information on conformance or non-conformance was found (both an 'in-conformance' and a 'non conformance' answer will need the location of the information used to make your determination). Also use the remarks column to report any possible LUP maintenance needs when the LUP is in conformance, or recommendations on amendment or revision needs due to non-conformance. When review is complete, send a clear copy to your state office (930). File original in the resource area or district. (Refer to the language in the Range Reform '94 pamphlet as needed; the standards and guides are not always "well stated" and an attempt was made in this checklist to abbreviate those statements. Also see the attached definition of Conformance and the Standards for Conformance.)

ISSUE	IN CONFORMANCE	NOT IN CONFORMANCE	REMARKS
<b>Standards and Guidelines</b>  1. Grazing management practices will be implemented that will ensure special status species recovery or protection and prevention from future listing.			

ISSUE	IN CONFORMANCE	NOT IN CONFORMANCE	REMARKS
2A. Grazing Management/Best management practices will be implemented through terms and conditions of permits and leases that:			
2B. Maintain/restore water quality to meet or exceed state standards;			
2C. Yield/provide water for beneficial uses, for propagation of fish and wildlife and for recreation.			
3. Grazing schedules will include rest periods during times of critical plant growth or regrowth.			
4. Field managers will make grazing use adjustments (timing, intensity, duration) before the next grazing season when it is <u>visually apparent</u> (using the checklist in the appendix for documentation) or where monitoring data reveals that key resource values or watershed functional requirements are not being met or are at risk of becoming disfunctional because of livestock use.			
5. Continuous season-long grazing to be authorized <u>only</u> if properly functioning condition and/or meeting resource objectives is demonstrated.			
6A. Pesticide use allowed <u>only</u> when other alternatives are not feasible;			
6B. Target species well defined and minimal nontarget risks required.			

ISSUE	IN CONFORMANCE	NOT IN CONFORMANCE	REMARKS
7. Terms and conditions of each permit or lease will include season of use, livestock numbers, kinds, deferment, rest, or strategies to maintain or restore vegetative communities			
8. Water developments will be designed to maintain or enhance ecological values of those sites.			
9. Mineral, protein or other supplements will be placed at least 1/4 mile from riparian-wetland areas:			
10. Wells will be drilled at least 1/4 mile from riparian-wetland areas, or water made available 1/4 mi. "offstream".			
11A. Delineation of ephemeral range required.			
11B. Allow grazing of ephemeral range only if: 1) valid estimates of production have been made, 2) identify level of onsite growth to remain, 3) adverse effects on perennial species avoided.			
12. New livestock management and holding facilities will be located outside riparian-wetland areas.			
13. Mitigation of negative impacts caused by existing livestock management and holding facilities within riparian-wetland areas or removal of these facilities required.			

ISSUE	IN CONFORMANCE	NOT IN CONFORMANCE	REMARKS
14A. Utilization or residual vegetation target levels (both herbaceous and woody species) established for riparian-wetland areas to: 1) facilitate reproduction of vegetation/ maintain age class distribution; 2) maintain or restore healthy vigorous plant conditions			
14B. Provide for vegetation biomass and plant residue (litter) remaining in riparian-wetland areas for sediment filtering and dissipation of stream energy for bank protection:			
<b>Standards and Guidelines for Unhealthy Ecosystems</b> <b>(Assessment of functionality required).</b> <u><b>Riparian-Wetland and Aquatic Components</b></u> <b>(Not Functioning Properly)</b>  1. Streambank damage by livestock will be limited to less than 25 percent of the linear length of a stream segment.			
2. Livestock access to the aquatic zone will be prevented in those seasons and areas where continued grazing would damage important resources.			
3. Grazing management structures within the normal high water line causing deterioration of aquatic areas will be removed or modified.			

ISSUE	IN CONFORMANCE	NOT IN CONFORMANCE	REMARKS
<p><b>(Functioning but Susceptible to Degradation)</b></p> <p>1. Livestock grazing use will be adjusted and livestock grazing practices implemented to achieve properly functioning condition and desired plant communities.</p>			
<p>2. Livestock use will be adjusted to allow aquatic systems to achieve physical parameters necessary for desired biotic communities.</p>			
<p><u><b>Upland Component</b></u></p> <p><b>(Not Functioning Properly)</b></p> <p>1. Livestock grazing will be adjusted, which may include total rest, to ensure proper functioning condition is reached where key resources or watershed functional requirements are not being met.</p> <p>2. Range improvement projects will be limited to those that resolve a resource problem and contribute to achieving properly functioning condition.</p> <p>3. Land treatment solely oriented toward meeting livestock forage requirements will be discontinued.</p>			
<p><b>(Functioning but Susceptible to Degradation)</b></p> <p>1. Grazing management practices that will improve the uplands to properly functioning condition will be implemented.</p>			



ISSUE	IN CONFORMANCE	NOT IN CONFORMANCE	REMARKS
2. Livestock grazing will be adjusted when monitoring shows the use is incompatible with reaching properly functioning condition.			
3. Range improvement projects will be limited to those that resolve a resource problem and contribute to properly functioning ecosystems.			
<b>Implementation Steps for the Clean Water Act</b>  1. Plan decisions provide no barriers to (do not preclude) using the seven step pollution control strategy for selecting appropriate Best Management Practices (BMP's) and protecting water quality in grazing management areas.			
<b>Proposed Changes in Policy and Regulations</b> In addition to the Standards and Guidelines, Range Reform includes several changes in policy or regulations. Please indicate whether any of these changes conform, or if a conformance review is required.			
A. Subleasing			
B. Unauthorized Use			
C. Affected Interests			
D. Conservation Use and Temporary Non-use			
E. Suspended Non-use			
F. Forage Allocation			

ISSUE	IN CONFORMANCE	NOT IN CONFORMANCE	REMARKS
G. Full Force and Effect Decisions			
H. Disqualification			
I. Prohibited Acts			
J. Permit or Lease Tenure			
K. Advisory Boards and Councils			
L. Range Improvement Funds			
M. Range Improvement Ownership			
N. Water Rights on Federal Lands			

[illegible]

LUP NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

To be completed by State Office

STATEWIDE SUMMARY REPORT ON LAND USE PLAN CONFORMANCE FOR RANGELAND REFORM 94

STATE: \_\_\_\_\_

DATE: \_\_\_\_\_

ISSUE	NUMBER	REMARKS
Number of MFP's and RMP'S Checked in the state:		
Number of LUP's that <u>Do</u> conform:		
Number of LUP's that <u>Do Not</u> conform:		
Number of LUP's needing maintenance:		
Number of LUP's needing amendments:		
Number of LUP's needing revisions:		

To assess what impact the proposed Rangeland Reform 94 policies, guidelines and standards and will have on the planning system (LUPs), please review the checklists for all the LUPs in your state. The number of plans not in conformance and the updating process needed to achieve conformance should be reported above. Also indicate whether one statewide EA/EIS would provide adequate NEPA review of the plans not in conformance. In the section below, identify those Standards and Guidelines which you feel need modification (additions, deletions, or changes). In the Remarks section, please identify specifically how that Standard or Guideline can be improved. Your recommendations and suggestions will be used to refine/improve the Range Reform proposal.

STANDARD AND GUIDELINE	REMARKS

## CHECKLIST ON IMPACTS OF RANGELAND REFORM 94

(o) No Impact    (-) Low Neg. Impact    (--) Moderate Neg. Impact    (---) High Neg. Impact    (+) Low Beneficial Impact  
 (+ +) Mod. Beneficial Impact    (+ + +) High Beneficial Impact

CHANGE AGENT	VEGETATION			SOCIO / ECON	RANCH OPERA- TIONS	REMARKS
	UPLAND	RIP	AQUA			
<b>Standards and Guidelines</b>						
1. Grazing management practices will be implemented that will ensure special status species recovery or protection and prevention from future listing.						
2A. Grazing Management/Best management practices will be implemented through terms and conditions of permits and leases that:						
2B. Maintain/restore water quality to meet or exceed state standards;						
2C. Yield/provide water for beneficial uses, for propagation of fish and wildlife and for recreation.						
3. Grazing schedules will include rest periods during times of critical plant growth or regrowth.						



CHANGE AGENT	VEGETATION			SOCIO / ECON	RANCH OPERA- TIONS	REMARKS
	UPLAND	RIP	AQUA			
4. Field managers will make grazing use adjustments (timing, intensity, duration) before the next grazing season when it is <u>visually apparent</u> (using the checklist in the appendix for documentation) or where monitoring data reveals that key resource values or watershed functional requirements are not being met or are at risk of becoming disfunctional because of livestock use.						
5. Continuous season-long grazing to be authorized <u>only</u> if properly functioning condition and/or meeting resource objectives is demonstrated.						
6A. Pesticide use allowed <u>only</u> when other alternatives are not feasible;						
6B. Target species well defined and minimal nontarget risks required.						
7. Terms and conditions of each permit or lease will include season of use, livestock numbers, kinds, deferment, rest, or strategies to maintain or restore vegetative communities						
8. Water developments will be designed to maintain or enhance ecological values of those sites.						
9. Mineral, protein or other supplements will be placed at least 1/4 mile from riparian-wetland areas:						

CHANGE AGENT	VEGETATION			SOCIO / ECON	RANCH OPERA- TIONS	REMARKS
	UPLAND	RIP	AQUA			
10. Wells will be drilled at least 1/4 mile from riparian-wetland areas, or water made available 1/4 mi. "offstream".						
11A. Delineation of ephemeral range required.						
11B. Allow grazing of ephemeral range only if: 1) valid estimates of production have been made, 2) identify level of onsite growth to remain, 3) adverse effects on perennial species avoided.						
12. New livestock management and holding facilities will be located outside riparian-wetland areas.						
13. Mitigation of negative impacts caused by existing livestock management and holding facilities within riparian-wetland areas or removal of these facilities required.						
14A. Utilization or residual vegetation target levels (both herbaceous and woody species) established for riparian-wetland areas to: 1) facilitate reproduction of vegetation/ maintain age class distribution; 2) maintain or restore healthy vigorous plant conditions						

CHANGE AGENT	VEGETATION			SOCIO / ECON	RANCH OPER- ATIONS	REMARKS
	UPLAND	RIP	AQUA			
14B. Provide for vegetation biomass and plant residue (litter) remaining in riparian-wetland areas for sediment filtering and dissipation of stream energy for bank protection:						
<p>Standards and Guidelines for Unhealthy Ecosystems (Assessment of functionality required). <u>Riparian-Wetland and Aquatic Components</u> (Not Functioning Properly)</p> <p>1. Streambank damage by livestock will be limited to less than 25 percent of the linear length of a stream segment.</p>						
<p>2. Livestock access to the aquatic zone will be prevented in those seasons and areas where continued grazing would damage important resources.</p>						
<p>3. Grazing management structures within the normal high water line causing deterioration of aquatic areas will be removed or modified.</p>						

CHANGE AGENT	VEGETATION			SOCIO / ECON	RANCH OPERA- TIONS	REMARKS
	UPLAND	RIP	AQUA			
(Functioning but Susceptible to Degradation)						
1. Livestock grazing use will be adjusted and livestock grazing practices implemented to achieve properly functioning condition and desired plant communities.						
2. Livestock use will be adjusted to allow aquatic systems to achieve physical parameters necessary for desired biotic communities.						
<u>Upland Component</u>						
(Not Functioning Properly)						
1. Livestock grazing will be adjusted, which may include total rest, to ensure proper functioning condition is reached where key resources or watershed functional requirements are not being met.						
2. Range improvement projects will be limited to those that resolve a resource problem and contribute to achieving properly functioning condition.						
3. Land treatment solely oriented toward meeting livestock forage requirements will be discontinued.						

CHANGE AGENT	VEGETATION			SOCIO / ECON	RANCH OPERATIONS	REMARKS
	UPLAND	RIP	AQUA			
(Functioning but Susceptible to Degradation)						
1. Grazing management practices that will improve the uplands to properly functioning condition will be implemented.						
2. Livestock grazing will be adjusted when monitoring shows the use is incompatible with reaching properly functioning condition.						
3. Range improvement projects will be limited to those that resolve a resource problem and contribute to properly functioning ecosystems.						
Proposed Changes In Policy and Regulations In addition to the Standards and Guidelines, Range Reform includes several changes in policy or regulations. Please indicate any impacts that will occur due to the these changes:						
A Subleasing						
B. Unauthorized Use						
C. Affected Interests						
D. Conservation Use and Temporary Non-use						
E. Suspended Non-use						
F. Forage Allocation						



CHANGE AGENT	VEGETATION			SOCIO / ECON	RANCH OPERA- TIONS	REMARKS
	UPLAND	RIP	AQUA			
G. Full Force and Effect Decisions						
H. Disqualification						
I. Prohibited Acts						
J. Permit or Lease Tenure						
K. Advisory Boards and Councils						
L. Range Improvement Funds						
M. Range Improvement Ownership						
N. Water Rights on Federal Lands						

## RATIONALE FOR DATA SETS USED IN THE EIS

### Upland Functioning Condition

For the purposes of EIS analysis, functioning of upland areas represents the minimum conditions that must be present to allow the soil and vegetation to produce a natural biological community. It is used here as a frame of reference for comparison of alternatives. The intent is to provide the reader with an estimate of how the adoption of the various alternatives may impact upland functioning condition as defined for this analysis.

The baseline or existing situation for functional condition status is not to be considered as a hard data estimate individually but only as a starting point against which one can measure the relative difference between alternatives.

The estimates of the rate of change of upland functioning condition by alternative were developed largely through the professional judgement of BLM and Forest Service resource specialists.

The rate of change is expressed as a percent of each condition class that would be expected to either increase or decrease as a result of the alternative. For example, the estimated starting point of 21,000,000 acres of uplands in non-functioning condition is expected to decrease by 60%, functioning at risk acres would decrease by 100% and proper functioning condition acres would increase by 66% under the no grazing alternative in the long term.

### ESTIMATED % RATE OF CHANGE OF FUNCTIONING CONDITION

BASELINE		CM		NG		LP		EE		PA	
		ST	LT	ST	LT	ST	LT	ST	LT	ST	LT
PFC	91,000,000	0	+30%	+5%	+65%	+T	+40%	+5%	+65%	+T	+55%
FAR	48,000,000	0	-55%	-5%	-100%	-T	-75%	-5%	-100%	-T	-90%
NF	21,000,000	0	-T	-T	-60%	-T	-15%	-T	-60%	-5%	-30%

T = Trace or minimal amount of change in UPLAND  
FUNCTIONING CONDITION

### Riparian Functioning Condition

The terms Proper Functioning Condition, Functional at Risk, Nonfunctional, and Unknown are defined in the BLM Technical Reference 1737-9 publication Riparian Area Management. This document outlines a process for assessing proper functioning condition. The BLM acreage in the respective functioning condition

classes were based on field office responses to a BLM Instruction Memorandum issued in August 1993.

The determination of the anticipated response of riparian resources to the various management alternatives were initially determined and agreed to by consensus of a group of eleven fishery and wildlife biologists from throughout the Western states. It was unanimously agreed upon that the response of the riparian vegetation to the management proposed under each alternative would be the key factor in determining impacts on the wildlife resources. The determination of the ranges in percent change in riparian resource functioning conditions was the result of extensive discussions of the potential of riparian resources throughout the West. Their recommendations/determinations were accepted by the larger group of specialists writing the EIS.

The following reflects the estimated average percent changes used for each alternative for the short and long term analysis:

<u>Alternative</u>	<u>Time Frame</u>	<u>Average Change</u>
Current Mgt	Short-term	0%
	Long-term	-3%
Proposed Act	Short-term	2%
	Long-term	20%
Livestock Prod	Short-term	-3%
	Long-term	-8%
Environmental	Short-term	13%
	Long-term	53%
No Graze	Short-term	20%
	Long-term	68%

#### Ecological Status

The BLM has ecological status information on approximately 81.8 million acres as of the end of Fiscal Year 1992. This information is based on inventories that have been completed over the last 10 to 15 years. The bulk of the inventories were completed in the late 1970's and early 1980's. Inventory work is presently ongoing with one to two million acres being inventoried each year.

An additional 45.4 million acres have a variety of other inventories that primarily assess range condition, and 31.2 million acres are assessed via professional judgement. These inventories and professional judgements are more an assessment of livestock forage value rather than true ecological status.

Ecological status is not determined for approximately 6.8 million acres of nonnative seedings and annual rangelands administered by

the BLM. The range condition assessment for these areas has been primarily based on a livestock forage resource value rating.

For the purpose of this EIS analysis, we assume the percentage of land in the various ecological seral stages on the 81.8 million acres of inventoried land also represents the BLM administered land that does not have an ecological site inventory. The existing situation is portrayed as being the ecological status data, seral stage percentages, compiled in the BLM's Annual Rangeland Report for Fiscal Year 1992. The seral stage percentages projected for each alternative are based on the professional judgement of the interdisciplinary teams of resource specialists who were the primary preparers of the vegetation sections of the EIS. This analysis does not "project" any new ecological status inventories; rather, it shows the relationship of each alternative to the existing data set.

### Trend

The BLM has rangeland trend information on approximately 140.9 million acres as of the end of Fiscal Year 1992. An additional 24.2 million acres is recognized as being undetermined with respect to trend. This information is either "apparent" trend (67 percent), or "monitored" trend (33 percent). The distinction is that apparent trend results from a one-time measure of rangeland characteristics. It only provides a picture of the situation at the time of measurement. The monitored trend is the result of evaluating rangeland site characteristics over a longer period of time to see whether an area is improving, deteriorating, or static.

For the purpose of this EIS analysis, the existing situation is portrayed as being the rangeland trend data compiled in the BLM's Annual Rangeland Report for Fiscal Year 1992. The trend percentages projected for each alternative are based on the professional judgement of the interdisciplinary teams of resource specialists who were the primary preparers of the vegetation sections of this document.

### Forest Service Rangeland Status and Trend

The Forest Service establishes land management objectives, including rangeland resource objectives, in individual national forest land and resource management plans. In 1992 the Forest Service implemented its new program for evaluating how rangeland activities progress toward better condition of rangeland ecosystems. The following categories were established: acres meeting forest plan objectives; acres moving toward forest plan objectives; acres not meeting or moving toward forest plan objectives; and acres of undetermined status (unknown). National Forest System lands with range vegetation management objectives were classified into one of these categories for the first time in 1992.

Professional resource managers classified lands with range vegetation management objectives into the categories above using existing inventories, monitoring data, and professional judgement. The reliability of these estimates varies with the amount of data available and personal knowledge of the areas.

For the purposes of analyzing the environmental consequences in this analysis, the acres of undetermined status were prorated into the other categories based on the ratio of acres in the other categories.

#### AUMs

The AUM data for analysis was taken from the BLM's Public Land Statistics, 1991 and the FS Grazing Statistical Summary FY 1992. This data is the most current data available and represents actual AUMs sold by the agencies.

The comparisons of AUMs are estimates of the difference in AUMs by alternative and projected directly from the actual AUMs as per the referenced material. The difference in the projections are primarily the established long term trends of the statistical reports, ecological conditions, functioning conditions, objectives status for the FS and acres available for grazing.



Table 2-9: SUMMARY OF IMPACTS

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
CLIMATE	Climate will not be affected by any alternative.				
AIR QUALITY	Air quality would not be significantly affected under any alternative. Locally, all alternatives would affect air quality because of vegetation treatments applied as part of rangeland management, including prescribed burning, mechanical treatments, and chemical applications. Such impacts would tend to be temporary, small in scale, and widely dispersed.				

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
VEGETATION AND WATERSHED CONDITIONS	<p>On BLM lands, the amount of inventoried upland vegetation in late seral and potential natural communities would increase by 11 percent (from 31.8 to 35.3 million acres) over the long term. The upward trend on BLM upland vegetation would increase by 10 percent (from 28.4 to 31.3 million acres). On Forest Service lands, the amount of upland vegetation meeting or moving toward forest plan objectives would increase by 2 percent (from 58.9 to 59.9 million acres). Most improvement in upland vegetation conditions would occur in areas receiving more than 12 inches of precipitation annually. (See Figure 2-3.)</p> <p>In the long term, about 117,000,000 million acres of BLM uplands would be in proper functioning condition, 22,000,000 acres would</p>	<p>On BLM lands, the amount of inventoried upland vegetation in late seral and potential natural communities would increase by 16 percent (to 36.9 million acres) over the long term. The upward trend on BLM upland vegetation would increase by 21 percent (to 34.3 million acres). On Forest Service-administered lands, upland vegetation meeting or moving toward forest plan objectives would increase by 2 percent (to 60.1 million acres). Most improvement in upland vegetation conditions would occur in areas receiving more than 12 inches of precipitation.</p> <p>In the long term, about 138,000,000 million acres of BLM uplands would be in proper functioning condition, 6,000,000 acres would be functioning but</p>	<p>On BLM lands, the amount of inventoried upland vegetation in late seral and potential natural communities would increase by 21 percent (to 37.8 million acres) over the long term. The upward trend on BLM upland vegetation would increase by 15 percent (to 32.8 million acres). Most of the improvement in upland vegetation conditions would occur in areas receiving more than 12 inches of precipitation.</p> <p>In the long term, about 129,000,000 million acres of BLM uplands would be in proper functioning condition, 12,500,000 acres would be functioning but susceptible to degradation; and another 17,500,000</p>	<p>On BLM lands, the amount of inventoried upland vegetation in late seral and potential natural communities would increase by 24 percent (to 39.4 million acres) over the long term. The upward trend on BLM upland vegetation would show a 25 percent increase (to 35.4 million acres). Most improvement in upland vegetation conditions would occur in areas receiving more than 12 inches of precipitation.</p> <p>In the long term, about 151,000,000 million acres of BLM uplands would be in proper functioning condition, 0 acres would be functioning but susceptible to degradation; and another 8,000,000 would</p>	<p>On BLM lands, the amount of inventoried upland vegetation in late seral and potential natural communities would increase by 27 percent (to 40.4 million acres) over the long term. The upward trend on BLM upland vegetation would show only an 8 percent increase (to 30.6 million acres), a result of removing grazing from ecosystems or vegetation zones that evolved under grazing pressure. But as both agencies more rigorously apply ecosystem management principles, local use of livestock grazing to simulate ecological processes may gradually increase. Vegetation conditions and trends would change only slightly if at all in areas dominated by shrubs or pinyon-juniper, even over the long term. Most improvement in upland vegetation conditions would occur in areas receiving more than 12 inches of precipitation.</p> <p>In the long term, about 151,000,000 million acres of BLM uplands would be in proper</p>

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
VEGETATION AND WATERSHED CONDITIONS (Continued)	<p>In the long term, 33 percent of BLM riparian areas would be properly functioning, a decrease of 3 percent from 1993. Another 45 percent would be functioning but susceptible to degradation, a decrease of less than 1 percent from 1993. About 21 percent would be nonfunctioning, an increase of 7 percent from 1993.</p> <p>On Forest Service-administered lands (Figure 2-8), riparian areas meeting or moving toward forest plan objectives would decrease by 1 percent (from 1.71 million to 1.64 million acres).</p>	<p>In the long term, 43 percent of BLM riparian areas would be properly functioning, an increase of 27 percent from 1993. Another 41 percent would become functioning but susceptible to degradation, a decrease of 11 percent from 1993. About 16 percent would be nonfunctioning, a decrease of 20 percent from 1993.</p> <p>On Forest Service-administered lands, riparian areas that meet or are moving toward forest plan objectives would increase by 7 percent (to 1.83 million acres) over the long term.</p> <p>Improvements would result mainly from implementing standards and guidelines (BLM), ecosystem management, modified livestock management practices, and increased public involvement in managing rangeland resources.</p>	<p>In the long term, 32 percent of BLM riparian areas would be properly functioning, a decrease of 8 percent from 1993. Another 45 percent would become functioning but susceptible to degradation, a decrease of 2 percent from 1993. About 24 percent would be nonfunctioning, an increase of 18 percent from 1993).</p> <p>On Forest Service-administered lands, riparian areas that meet or are moving toward forest plan objectives would decrease by 11 percent (to 1.53 million acres) over the long term.</p> <p>Improvements would result from implementing regional (BLM) and local (Forest Service) standards and guidelines, which would tend to focus on livestock forage and upland watershed conditions and somewhat less on other resources. Implementing regional and local BLM standards and guidelines would continue inconsistencies between BLM and Forest Service resource management.</p>	<p>In the long term, about 59 percent of BLM riparian areas would be properly functioning, an increase of 71 percent from 1993. Another 32 percent would become functioning but susceptible to degradation, a decrease of 30 percent from 1993. About 9 percent would be nonfunctioning, a decrease of 53 percent from 1993.</p> <p>On Forest Service-administered lands, riparian areas that meet or are moving toward forest plan objectives would increase by 28 percent (to 2.19 million acres) over the long term.</p> <p>Improvements would result from implementing standards and guidelines for both agencies. Applying standards and guidelines would limit livestock grazing to areas in proper functioning condition. Later regional standards and guidelines would ensure that ecosystem management objectives are met. Having a greater productive potential, riparian</p>	<p>In the long term, 65 percent of BLM riparian areas would be properly functioning, an increase of 91 percent from 1993. Another 28 percent would become functioning but susceptible to degradation, a decrease of 38 percent from 1993. About 6 percent would be nonfunctioning, a decrease of 68 percent from 1993.</p> <p>On Forest Service-administered lands, riparian areas that meet or are moving toward forest plan objectives would increase by 28 percent (to 2.19 million acres) over the long term.</p>

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
VEGETATION AND WATERSHED CONDITIONS (Continued)	The level of forage authorized for livestock by both agencies would decline by 18 percent.	The level of forage authorized for livestock by both agencies would decline by 21 percent.	Although forage authorized for livestock by both agencies would decrease by 11 percent, overall riparian resource conditions would continue to decline.	Forage authorized by both agencies for livestock would decline by 31 percent.	Forage authorized for livestock by both agencies would decline by essentially 100 percent.
WILDLIFE	Upland-dependent wildlife would generally benefit from changes in upland plant communities. Fish and other wildlife associated with riparian areas would continue to decline as riparian habitat conditions continue to deteriorate. Locally, riparian habitat conditions would continue to improve in allotments where changes in livestock management can be or have recently been implemented.	Both upland and riparian-dependent wildlife would benefit from projected improvements in vegetation and watershed conditions. Upland species that favor or rely upon late seral and potential natural communities would benefit more than species that favor earlier seral stages.	Upland-dependent wildlife would generally benefit from changes in upland plant communities. Upland species that favor or rely upon late seral and potential natural communities would benefit more than species that favor earlier seral stages.  Fish and other wildlife species associated with riparian areas would continue to decline as riparian habitat conditions continue to deteriorate.	Both upland and riparian-dependent wildlife would benefit from improvements in vegetation and watershed conditions. Upland species that favor or rely upon late seral and potential natural communities would benefit more than species that favor earlier seral stages. Most wildlife benefits would result from limiting livestock grazing to areas in proper functioning condition.	Both upland and riparian-dependent wildlife species would benefit from improvements in vegetation and watershed conditions. Upland species that favor or rely upon late seral and potential natural communities would benefit more than species that favor earlier seral stages.

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
<b>SPECIAL STATUS SPECIES</b>	<p>In general, special status species associated with upland vegetation would benefit from improvements in upland conditions. Some species might be restored or recover although the status of individual species would continue to highly depend on many factors (such as the implementing of interagency recovery plans). Special status species that depend on riparian habitat would probably continue to decline, and new species might become threatened or endangered. But continued consultation with the Fish and Wildlife Service and more rigorous implementing of ecosystem management practices should minimize such declines on BLM and national forest lands.</p>	<p>In general, special status species associated with both upland and riparian vegetation would benefit from improvements in conditions. Some species might be restored or recover, although the status of individual species would continue to highly depend on many factors (such as implementing interagency recovery plans).</p>	<p>Special Status Species favoring upland range conditions that are improved for livestock production would benefit. Others would continue to decline. Special status species that depend on riparian habitat would probably continue to decline, and new species might become threatened or endangered. But continued consultation with the Fish and Wildlife Service and more rigorous implementing of ecosystem management practices should help mitigate or reduce such declines.</p>	<p>In general, special status species associated with both upland and riparian vegetation would benefit from improved conditions. Some species might be restored or recovered, although the status of individual species would continue to be highly dependent on many factors (such as implementing interagency recovery plans). Some listed species would benefit from excluding livestock, particularly in riparian areas.</p>	<p>Generally, special status species associated with both upland and riparian vegetation would benefit from improved conditions. Some species might be restored or recover, although the status of individual species would continue to high depend on many factors (such as implementing interagency recovery plans). Some listed species would benefit from excluding livestock, particularly in riparian areas.</p>



ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
GRAZING ADMINISTRATION	<p>Nonuse has been authorized annually for operator convenience or resource protection. In BLM, grazing decisions are automatically stayed from implementation until any appeals are resolved. Forest Service decisions related to grazing permit compliance are not automatically stayed upon appeal. Forest Service decisions made through the NEPA process are stayed for 45 days if appealed. Persons may appeal a decision merely to delay its implementation. Appeals create a significant administrative workload for both agencies. Since each state has its own BLM policy to determine public participation procedures, inconsistencies have reduced administrative efficiencies. BLM grazing advisory boards strongly influence decisions on spending and setting priorities for Range Betterment Funds, and their recommendations tend to favor improvements that directly benefit livestock interests.</p>	<p>The agencies would become more consistent in applying grazing policies and regulations. Inconsistencies would remain in regulations relating to leasing and advisory groups. BLM efficiency would improve with regulation changes related to base property leases, livestock pasturing agreements, unauthorized use, appeal of grazing decisions, range improvement ownership, disqualification, and implementation of ecosystem management by applying standards and guidelines. The Forest Service would gain improved efficiency and consistency related to unauthorized use, foreign corporation eligibility for holding grazing permits, disqualification, and implementing ecosystem rangeland management.</p> <p>Including livestock grazing, temporary nonuse, and conservation use as part of authorized use would trim the administrative workload since conservation use would be incorporated into the terms of BLM grazing permits. The implementation of</p>	<p>Changes in grazing regulations regarding standards and guidelines, nonuse, grazing advisory boards, and range improvement ownership would allow BLM and the Forest Service to more efficiently administer their rangeland programs.</p> <p>Changes in administrative processes for unauthorized use, use of Range Betterment Funds, and resource decisions would hinder efficiency in meeting resource management objectives. Grazing transfers on Forest Service-administered lands would significantly increase due to increased leasing of base property and livestock. BLM and Forest Service regulations would be more alike than at present, making it easier to consistently implement ecosystem management.</p> <p>The time and money spent by the agencies would be greatly reduced by transferring administrative roles to grazing associations formed by grazing</p>	<p>Under this alternative, BLM and Forest Service regulations would be consistent. This consistency, combined with common standards and guidelines, would help both agencies implement ecosystem management. BLM would no longer issue base property or livestock leases. Allowing the public to become involved in all aspects of grazing administration would greatly increase the amount of time the agencies would spend working with the public and permittees to facilitate consensus decisions. The decrease in stayed agency decisions would facilitate rapid implementing of forage adjustments, management revisions, and other administrative changes resulting from standards and guidelines. Permittee performance as acceptable land stewards would play a major role in determining the length of their grazing permit. Resource advisory councils would provide more balanced input into both agencies' decisionmaking process.</p>	<p>Without other livestock management responsibilities, BLM and the Forest Service could devote more resources to detecting and resolving unauthorized use. The two agencies would be required to pay grazing permittees for the current value of their private investments in projects they could no longer use.</p>

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
GRAZING ADMINISTRATION (Continued)	<p>Range Betterment Funds are now distributed by RLM to their areas of origin. The Forest Service distributes half of Range Betterment Fund to the area of origin and gives the regional forester discretion to distribute the other half on the basis of regional priorities.</p> <p>Use of Range Betterment Funds is generally limited to design and building of improvements. In some areas, the Forest Service also uses these funds for planning and environmental analysis directly associated with building improvements. Both agencies are developing policies that promote ecosystem management.</p>	<p>The number of base property and livestock leases would decrease as the surcharge reduces profitability.</p>			

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
WILD HORSES AND BURROS	<p>Existing private control of water rights and range improvements on BLM administered herd management areas would hinder the meeting of wild horse and burro management objectives. The Forest Service currently controls livestock water rights and permanent range improvements on national forest lands. Livestock would continue to compete with wild horses and burros for water and forage. Improved upland vegetation trends would favor the forage base for wild horses and burros. The influence of BLM grazing advisory boards would focus on livestock production discouraging wild horse and burro considerations in local resource management. The Forest Service does not use grazing advisory boards.</p>	<p>BLM would file for water rights for new water developments for grazing related purposes on public land. The Forest Service currently files for all livestock water rights on National Forest land. Agency control of water rights would provide additional opportunity for management of available water for wild horses and burros, increasing dispersement and improving overall vegetation. BLM would own all new permanent range improvements on BLM land as the Forest Service currently does on National Forest land, which would focus range improvement more on development for mutual benefits including emphasis on wild horses and burros. Replacing BLM grazing advisory boards with BLM resource advisory councils would have a more balanced focus towards wild horse and burro management. The Forest Service would continue to involve interested publics through the NEPA process.</p>	<p>Improvement in upland vegetation condition would increase the amount and quality of wild horse and burro forage. Focusing on increasing livestock production, increased range improvements would mainly consist of vegetation treatments and water developments. These improvements in wild horse and burro management areas would improve conditions for wild horse and burros. But increased livestock management fences in wild horse management areas would inhibit the free roaming of wild horses and burros.</p>	<p>Improvement of upland and riparian vegetation zones would provide improved conditions for wild horses and burros where competition with livestock has been eliminated because of nonfunctioning and functioning but subject to degradation determinations. Range improvements and water developments would be managed with a broader diversity of values, improving conditions and opportunities for more intensive wild horse and burro management. Resource advisory councils would have more diverse interests, resulting in increased emphasis on wild horse and burro management.</p>	<p>Improved upland and riparian vegetation zones would improve range conditions of wild horses and burros where they compete with livestock. Range improvements blocking wild horse and burro movement would be removed. The loss of range improvements critical to wild horses and burros would harm these animals until budget and management processes were developed to provide these needs. Improvements would be built for wild horses and burros. Publicly owned water developments and fences would be built in herd management areas to protect riparian and other sensitive areas.</p>
RECREATION AND SCENIC VALUES	<p>Alternatives that would most improve riparian and wildlife habitat conditions would generally result in the greatest improvement in opportunities for recreation, particularly fishing, camping, picnicking, hunting, birdwatching, and related activities.</p>				

ENVIRONMENTAL FACTOR	ALTERNATIVE			
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT
WILDERNESS	Effects on wilderness values would generally correspond to projected effects on vegetation and watershed conditions and wildlife habitat. Alternatives that result in more naturally appearing and functioning ecosystems would result in landscapes that more closely meet the definition of wilderness. Wilderness-related recreation values would generally be affected in the same way as other recreation values.			
CULTURAL AND PALEONTOLOGICAL VALUES	Effects on cultural and paleontological values are generally related to grazing intensity and surface disturbance from building range improvements. Alternatives that would allow less livestock grazing of forage and fewer range improvements generally would less disturb cultural and paleontological resources.			

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
ECONOMIC CONDITIONS	<u>EMPLOYMENT LOSSES WESTWIDE:</u>  5 years: 710 - 1,820 jobs (0.1%)  20 years: 2,640 - 3,580 jobs (0.2%)  <u>TOTAL INCOME LOSSES WESTWIDE:</u>  5 years: \$28.7 - \$69.9 million (0.1% - 0.2%)  20 years: \$106.7 - \$141.5 million (0.3% - 0.4%)  <u>RANCH INCOME AND OPERATIONS:</u>  <u>425-cow operation with 60% forage dependency:</u>  5 years: 13-cow loss and net cash returns loss of \$1,100 (at current fee level) to \$14,300 (at average regional fee level)  20 years: 53-cow loss and net cash returns loss of \$4,600 (at current fee level) to \$15,600 (at average regional fee level)  <u>90-cow operation with 30% forage dependency:</u>  5 years: 0.5-cow loss and net cash returns loss of \$40 (at current	<u>EMPLOYMENT LOSSES WESTWIDE:</u>  5 years: 1,680 - 2,710 jobs (0.1% - 0.2%)  20 years: 2,760 - 3,680 jobs (0.2%)  <u>TOTAL INCOME LOSSES WESTWIDE:</u>  5 years: \$69.9 - \$106.1 million (0.2% - 0.3%) (See Figure 2-9)  20 years: \$111.5 - 145.7 million (0.3% - 0.4%) (See Figure 2-10)  <u>RANCH INCOME AND OPERATIONS:</u>  <u>425-cow operation with 60% forage dependency:</u>  5 years: 32-cow loss and net cash returns loss of \$2,700 (at current fee level) to \$14,900 (at average regional fee level)  20 years: 56-cow loss and net cash returns loss of \$4,800 (at current fee level) to \$15,700 (at average regional fee level)  <u>90-cow operation with 30% forage dependency:</u>  5 years: 1-cow loss and net cash returns loss of	<u>EMPLOYMENT LOSSES WESTWIDE:</u>  5 years: 470 - 1,610 jobs (up to 0.1%)  20 years: 1,700 - 2,730 jobs (up to 0.2%)  <u>TOTAL INCOME LOSSES WESTWIDE:</u>  5 years: \$19.1 - \$61.1 million (up to 0.2%) (See Figure 2-9)  20 years: \$68.5 - 106.7 million (up to 0.3%) (See Figure 2-10)  <u>RANCH INCOME AND OPERATIONS:</u>  <u>425-cow operation with 60% forage dependency:</u>  5 years: 8-cow loss and net cash returns loss of \$700 (at current fee level) to \$14,100 (at average regional fee level)  20 years: 32-cow loss and net cash returns loss of \$2,700 (at current fee level) to \$14,900 (at average regional fee level)  <u>90-cow operation with 30% forage dependency:</u>  5 years: 0-cow loss and \$0 net cash returns loss	<u>EMPLOYMENT LOSSES WESTWIDE:</u>  5 years: 7,240 - 7,820 jobs (0.5%)  20 years: 4,390 - 5,200 jobs (0.3%)  <u>TOTAL INCOME LOSSES WESTWIDE:</u>  5 years: \$292.3 - \$314 million (1%) (See Figure 2-9)  20 years: \$177.2 - \$207.1 million (0.6%) (See Figure 2-10)  <u>RANCH INCOME AND OPERATIONS:</u>  <u>425-cow operation with 60% forage dependency:</u>  5 years: 133-cow loss and net cash returns loss of \$11,400 (at current fee level) to \$18,300 (at average regional fee level)  20 years: 80-cow loss and net cash returns loss of \$6,800 (at current fee level) to \$16,500 (at average regional fee level)  <u>90-cow operation with 30% forage dependency:</u>  5 years: 5-cow loss and net cash returns loss of	<u>EMPLOYMENT LOSSES WESTWIDE:</u>  18,300 jobs (1% of total agricultural employment; less than 0.1% of total westwide employment)  <u>TOTAL INCOME LOSSES WESTWIDE:</u>  \$737.1 million (2.4% of total agricultural employment; 0.5% of total westwide income)  <u>RANCH INCOME AND OPERATIONS:</u>  <u>425-cow operation with 60% forage dependency:</u>  265-cow loss and net cash returns loss of \$22,800  <u>90-cow operation with 30% forage dependency:</u>  28-cow loss and net cash returns loss of \$2,400



ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
<p><b>ECONOMIC CONDITIONS (Continued)</b></p> <p>Permit Values</p>	<p>Retaining the current PRIA fee formula would generally maintain permit values. But uncertainty over future fees may cause permit values to be discounted. The effect or permit values of raising the grazing fee would vary by state and permittee. The significance of the impact would depend on when the permit was acquired. For permittees just purchasing permits where the permit values were not discounted, the impact might be significant. For permittees who have owned their permits for years, the impact might not be significant. Because they have benefited from lower fees through the years and have thus already captured much of the permit value.</p> <p>The value lost from reductions in federal in federal forage would vary considerably depending on such factors as: how critical federal grazing is to the economic viability of the ranch, alternative sources of forage, season of use, the</p>	<p>The impact on permit value due to the grazing fee would be the same as Current Management. The overall impact on permit value from federal AUM reductions would be greater than Current Management, but would vary considerably from permittee to permittee. Some permittees would have no reductions in permit value while others would lose considerable permit value, at least in the short run.</p>	<p>The impact on permit value due to the grazing fee would be the same as Current Management. The overall impact on permit value from federal AUM reductions would be less than Proposed Action, but would vary considerably from permittee to permittee.</p>	<p>The impact on permit value due to the grazing fee would be the same as Current Management. The overall impact on permit value from federal AUM reductions would be much greater than under the Proposed Action. The impact on the permit value of individual permittees would vary considerably with some permittee's permit values being entirely eliminated.</p>	<p>Permit value would be eliminated.</p>

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
ECONOMIC CONDITIONS (Continued)	<u>GRAZING FEE RECEIPTS:</u>  <u>Under current PRIA level:</u>  5 years: -\$1.5 million (-5%)  20 years: -\$6.2 million (-20%)  <u>Under other fee levels:</u>  5 years: \$6.3 million (21%) to \$69.5 million (226%)  20 years: \$468,000 (2%) to \$53.7 million (174%)  <u>PILT:</u>  Counties that receive payments in lieu of taxes (PILT) under PILT "Formula A" may experience a decrease in PILT payments if county grazing fee receipts increase. But <u>total</u> receipts paid to these counties (the sum of grazing fee receipts and PILT payments) would remain unchanged. Counties that receive PILT payments under PILT "Formula B" would experience no change in PILT payments regardless of changes in grazing fee receipts.	<u>GRAZING FEE RECEIPTS:</u>  <u>Under current PRIA level:</u>  5 years: -\$3.7 million (-12%)  20 years: -\$6.5 million (-21%)  <u>Under other fee levels:</u>  5 years: \$3.6 million (12%) to \$62.1 million (202%)  20 years: \$77,000 (0.2%) to \$52.6 million (171%)  <u>PILT:</u>  Same as under Current Management	<u>GRAZING FEE RECEIPTS:</u>  <u>Under current PRIA level:</u>  5 years: -\$923,000 (-3%)  20 years: -\$3.7 million (-12%)  <u>Under other fee levels:</u>  5 years: \$7.1 million (23%) to \$71.6 million (233%)  20 years: \$3.6 million (12%) to \$62.1 million (202%)  <u>PILT:</u>  Same as under Current Management	<u>GRAZING FEE RECEIPTS:</u>  <u>Under current PRIA level after and federal forage fee level:</u>  5 years: -\$11.2 million (-37%) to -\$15.4 million (-50%)  20 years: -\$3.4 million (-11%) to -\$9.2 million (-30%)  <u>Under other fee levels:</u>  5 years: \$0 to \$22 million (71%)  20 years: \$18.8 million (61%) to \$43.1 million (140%)  <u>Under the modified PRIA fee level:</u>  Receipts would decline slightly over the short term (5 years), \$246,000, and increase in the long term (20 years), \$12 million (39%).  <u>PILT:</u>  Same as under Current Management	<u>GRAZING FEE RECEIPTS:</u>  Grazing fee receipts would be eliminated. Estimated reduction is \$30.8 million.  <u>PILT:</u> Counties that receive PILT payments under PILT "Formula A" would receive higher PILT payments because grazing fee receipts that are normally deducted from PILT payments under this formula would be eliminated. Counties that receive PILT payments under PILT "Formula B" would experience no change in PILT payments regardless of the elimination of grazing fee receipts.
Grazing Fee Receipts and Payments					

ENVIRONMENTAL FACTOR	ALTERNATIVE				
	CURRENT MANAGEMENT	PROPOSED ACTION	LIVESTOCK PRODUCTION	ENVIRONMENTAL ENHANCEMENT	NO GRAZING
SOCIAL CONDITIONS	<p>Impacts to ranchers would range from slight under the current fee formula to losses in income and possible declines in social well-being under higher fee formulas. Permittees would favor this alternative at the current fee level.</p> <p>Social impacts in most counties and communities would be slight. In counties and communities that depend more on tourism and recreation, differences in opinions and values among groups could reduce community cohesiveness.</p>	<p>Impacts to ranchers due to income losses and changes in ranch operations would be greater than under the Current Management and could result in higher levels of stress and increased stress-related problems.</p> <p>Social impacts in ranching- dependent communities would be greater than under the Current Management. Social impacts in counties and communities less dependent on ranching would be similar to those under Current Management.</p> <p>This alternative is consistent with the attitudes of increasing numbers of people in the West and across the country who believe that rangeland management should emphasize protection of rangeland resources rather than livestock management.</p>	<p>Harm to permittee social well-being would be less than under the Proposed Action. Permittees would have more control over their operations and would favor this alternative at the current fee level.</p> <p>Social impacts in ranching- dependent counties and communities would be slight. In counties and communities that depend more on tourism and recreation, differences in opinions and values among groups could cause reduced community cohesiveness.</p> <p>This alternative is inconsistent with the attitudes of increasing numbers of people in the West and across the country who believe that rangeland management should emphasize protection of rangeland resources rather than livestock management.</p>	<p>Social impacts to ranchers due to income losses and changes in ranch operations would be much greater than under the Proposed Action and could include some permittee outmigration. Negative permittee attitudes toward the Federal Government would increase. Some permittees might limit access opportunities to the public. Permittees would not favor this alternative at any fee level.</p> <p>Negative impacts to ranching- dependent communities could include reduced leadership and decreased revenues for local infrastructure and services. In counties and communities that are undergoing rural development and increases in tourism and recreation, differences in opinions and values among groups could cause reduced community cohesiveness.</p> <p>This alternative is consistent with the attitudes of increasing numbers of people in the West and across the country, who believe</p>	<p>Social impacts to ranchers due to income losses and changes in ranch operations would be greater than under the Environmental Enhancement alternative. Permittee reactions to this alternative would be extremely negative.</p> <p>Impacts to counties and communities would be similar to but more severe than under the Environmental Enhancement alternative.</p> <p>Most people in the West and across the country might feel that this alternative is too restrictive in removing all livestock from federal lands.</p>